General Science Questions with Answers Part 3 in English

1. Heredity and Evolution

I. Choose the correct answer.

1. Mendel observed 7 pairs of contrasting characters in Pisum sativum. Which one of the following is not a part of that?

a. Tall and dwarf b. Yellow and green seed colour

c. Terminal and axial flower d. **Smooth and rough stem**

2. Primitive man evolved in _____

a**. Africa** b. America

c. Australia d. India

3. Which of the following is inheritable?

a. **an altered gene in sperm** b. an altered gene in liver cells

c. an altered gene in skin cells d. an altered gene in udder cells

4.The theory of Natural Selection was proposed by _____

a. **Charles Darwin** b. Hugo de Vries

c. Gregor Johann Mendel d. Jean Baptise Lamarck

5. Somatic gene therapy causes_____

a. changes in sperm b. changes in progency

c. **changes in body cell** d. changes in ovum

6. In a pea plant, the yellow colour of the seed dominates over the green colour. The genetic makeup of the green colour of the seed can be shown as ____

a. GG b. Gg

c. Yy d. **yy**

7. Some people can roll their tongue and this is a genetically controlled auto-somal dominant character.[Roller=RR/Rr:; Non-roller=rr]

A child who can roll the tongue has one brother who is a non-roller and two sisters who are rollers. If both the parents are rollers, the genotypes of their parents would be_____

a. RR x RR b. **Rr x Rr**

c. RR x rr d. rr x rr

8. Hydra, a multi-cellular invertebrate of phylum cnidaria(coelenterate) can give rise to new offspring by various methods. Choose the method by which the offspring are produced with significant variations.

a. budding b. regeneration

c**. sexual reproduction** d. asexual reproduction

9. The following are the events in the formation of the first cloned animal- the sheep Dolly.

i. Removal of haploid nucleus from the ovum.
ii. Implantation of ovum with diploid nucleus into the surrogate mother
iii. Collection if udder cell from the sheep
iv. Injection of diploid nucleus of udder cell into the enucleated ovum.
v. Development of a young clone.

a. (i)(ii)(iii)(iv)(v) b. (iii)(i)(ii)(v)(iv)

c. **(iii)(i)(iv)(ii)(v)** d. (v)(iv)(iii)(ii)(i)

10. The following are statements about stem cells.

i. There are unspecialised / undifferentiated cells.

ii. They can be transformed into any type of body cell
iii. They can multiply rapidly to form a large number of similar types of cells.
iv. They cannot transform into cardiac cells or nerve cells.
v. They are obtained from reproductive progency only

a**. (i)(ii)(iii) only** b. (iii)(iv)(v)only

c. (i)(iii)(v) only d. (ii)(iii)(v)only

11. In peons suffering from insulin-dependent diabetes, _____ the cells of pancreas are degenerated.

a. Alpha b**. Beta**

c. Gamma d. Delta

12. Identical twins are born as a result of fertilization between _____

a. two eggs and two sperms b. two eggs and one sperm

c. **one egg and one sperm** d. one egg and two sperms

13. Identify the incorrect statement about identical twins.

a. developed from a single zygote b. always of the same sex

c. look alike in many aspects d**. differ in their blood groups**

14. The correct statement about Neanderthal man is _____

a. the first human like hominid b. started agriculture

c. ate meat and walked erectly **d. buried the dead**

15. The inheritance of characteristics through generation is called “heredity”. In Mendel’s Pisum sativum plant, the genetic material responsible for heredity is_____

a. DNA b. RNA

c. Protein d. Cytoplasm

16. The difference in the characteristics between the individuals is called _____

a. Heredity b. **Variation**

c. Evolution d. Applied biology

17. The inheritance of characters through generation is called_____

a. Evolution b. Bio-technology

c**. Heredity** d. Variation

18. The scientist worked out the first scientific experimental study of heredity.

a. Ian Wilmut b. **Gregor Johann Mendel**

c. Charles Darwin d. Jean Baptiste de Lamarck

19. Mendel observed variations in the characteristics of _____ plant

a. 4 'O' clock b. sweet potato

c. **garden pea** d. sun flower

20. The monohybrid cross ratio is _____

a. 9:3:3:1 b. 2:1

c**. 3:1** d. 12:3:1

21. When a genetical character is expressed as the morphological expression, it is called _____

a. genotype b. allele

c. allelomorph d**. phenotype**

22. The genetic constitution of an individual for a particular trait is called____

a. phenotype b. **genotype**

c. alleles d. allelomorph

23. The contrasting pair of alleles make up an_____

a. genotype b. phenotype

c. **allelomorph** d. genes

24. Variations that pertain to the body cells and are not inherited are _____ variation.

a. germinal b. **somatic**

c. intra specific d. inter specific

25. The evolutionist made a number of observations and constituted the 'struggle for existence and survival of the fittest'.

a. **Charles Darwin** b. Jean Baptiste de Lamarck

c. Mendel d. Huxley

26. 'Use and Disuse Theory' was postulated by _____

a**. Jean Baptise de Lamarck** b. Charles Darwin

c. Gregor Johann Mendel d. August Weissmann

27. The first human like being creature is called _____

a**. Hominids** b. Rana tigrina

c. Homosapiens d. Gorilla

28. Gene manipulation is otherwise called as ____

a. **r-DNA technology** b. genetic map

c. gene flow d. genetic drift

29. _____ are the anti-viral proteins produced by virus infected cells.

a. Growth hormones b. Hyaline

c. **Interferon** d. Polypeptides

30. _____ enzymes are called as molecular sissors.

a. RNA Polymerase b**. Restriction endonuclease**

c. DNA ligase d. DNA polymerase

31. Which enzyme join the broken DNA fragments?

a. **DNA ligase** b. DNA synthetase

c. DNA polymerase d. RNA polymerase

32. Who coined the term vaccine?

a. Louis Pasteur b. **Edward Jenner**

c. Aristotle d. Mendel

33. _____ is used in the production of vinegar.

a. **Acetic acid** b. Nitric acid

c. Sulphuric acid d. Carboxylic acid

34. Steroid drugs like prednisolone is produced by from the fungs_____

a. Penicillium b. **Rhizopus**

c. Agaricus d. Saccharomyces

35. The _____ cells of pancreas produce insulin.

a. alpha b. **beta**

c. gamma d. delta

36. Fertilization made artificially in the laboratory is called _____

a. Partheno genesis b**. Invitro fertilization**

c. Embryonic fertilization d. Internal fertilization

37. Amylase is derived from _____ of bacteria.

a. insulin b. hormone

c. **amylo proteins** d. carbohydrates

38. Biological signals are converted into electrical signals by _____

a. **sensor** b. chips

c. technology d. therapy

39. Germ line gene therapy is used to treat defects in _____

a. cell b. tissues

c. organ d. **gametic cell**

40. Monoclonal antibodies are produced by _____ cells.

a. normal cells b. **cloned cells**

c. stem cells d. embryo

41. The first vaccine produced by bio-technology was used against _____ virus.

a. HIV b. Hepatitis A

c. **Hepatitis B** d. Hepatitis C

42. The phenotypic ratio of monohybrid is_____

a. **3:1** b. 1:1:1:1

c. 9:3 d. 1:2:1

43. Evolution tree is used to show the inferred_____

a. heredity b. variation

c. **evolution** d. speciation

44. Alternate expression of same genes are called _____

a. genes b. **alleles**

c. allelomorphs d. polymorphs

45. The contrasting pairs of alleles make up an_____

a. genes b. alleles

c. a**llelomorphs** d. polymorphs

46. The word _____ refer only to living species.

a. gene b. allele

c. embryo d. **clone**

47. _____ are a type of derived lipids.

a. Vaccines b. Vitamins

c. Hormones d. **Steroids**

48. _____ are employed to kill the infectious germs and cure a disease.

a. **Antibiotics** b. Vaccines

c. Vitamins d. Hormones

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49. The _____ man who lived in East and Central Asia 1 million years ago.

a. hominids b. homoerectus

c. **Neanderthal** d. homosapiens

II. Match the following

1.

1. Heredity	a. Expression of morphological characters
2. Variation	b. Inheritance of characters
3. Phenotype	c. Differences in the characters
4. Genotype	d. Expression

Ans: 1-b,2-c,3-a,4-d

2.

1. Waste treatment	a. Butyric acid
2. Medical products	b. Ethanol
3. Organic acid	c. Toxic wastes
4. Metabolite	d. Vaccines

Ans:1-c,2-d,3-a,4-b

3.

1. Hominids	a. East Africa	i. 1 million years ago
2. Homoerectus	b. Central Asia	ii. 75,000-10,000 years ago
3. Neanderthal	c. South Africa	iii. 3-4 million years ago

4. Archaic Homosapiens d. Africa iv. 1.5 million years ago

Ans: 1-d (iii), 2-a(iv),3-b(i),4-c(ii)

4.

1. Gregor Johann Mendel a. 1809-1882

2. Charles Darwin b. 1749-1823

3. Jean Baptise Lamarck c. 1822-1884

4. Edward Jenner d. 1744-1829

Ans: 1-c,2-a,3-d,4-b

5.

1. Pod shape a. Violet/white

2. Pod colour b. Full/constricted

3. Seed shape c. Green/ yellow

4. Flower colour d. Round/ wrinkled

Ans: 1-b,2-c,3-d,4-a

6.

1. Gregor Johann Mendel a. Use and disuse theory

2. Jean Baptise Lamarck b. Law of natural selection

3. Charles Darwin c. Law of inheritance

Ans: 1-c,2-a,3-b

7.

1. Brewing industry	a. produced by cloned cells
2. Antibiotics	b. type of derived lipids
3. Steroids	c. substances produced by some microbes
4. Monoclonal antibodies	d. Fermentation in alcoholic beverages

Ans: 1-d,2-c,3-b,4-a

III. Fill in the blanks

1. The differences in the characteristics among the individuals of the same species_____ reproduction produces, very closely resembling off springs.

Ans: asexual

2. Germinal variation pertains to gametes and it is _____

Ans: inheritable

3. Genetic engineering is the modification of the genetic information. The transfer og genes involved in nitrogen fixation is _____

Ans: NIF genes

4. The human evaluation, prehistoric caves were developed _____ years ago, agriculture came around _____ years back.

Ans: 18000, 10000

5. In monohybrid cross, the pea plants produce seeds by _____

Ans: self pollination

6. The first experiment of Mendel considering the inheritance of a single trait. Height of the plant Tall/ dwarf is called _____ cross.

Ans: monohybrid

7. Molecular scissors enzyme _____ is used as the tools of genetic engineering.

Ans: Restriction endonucleases

8. Paste enzyme _____ is used as the tools of genetic engineering.

Ans: DNA ligase

9. Biotechnology synthesised _____is used to cure pernicious anaemia.

Ans: Vitamin B12

10. Biotechnology produced _____ used to treat diabetes.

Ans: insulin

2. Immune system

I. Choose the correct answer

1. Pick out a case of healthy state of an individual.

a. Mr. X is recovering from an infectious disease.

b. Mr. Y takes insulin injection everyday

c. Mrs. Z is very depressed.

d. Mr. K does his duty and spends time joyfully.

2. Which one of the following is not socially balanced?

a. He enjoys a birthday party

b. He behaves rudely over trivial matters

c. He adjusts well to the surrounding situation

d. He attends to his ailing mother at the hospital.

3. _____ is a bacterial disease.

a. Meningitis b. Rabies

c. Tetanus d. Small pox

4. One of the following is transmitted through air. Find it out.

a. Tuberculosis b. Meningitis

c. Typhoid d. Cholera

5. The most serious form of malaria is caused by Plasmodium_____

a. ovale b. malariae

c. **falciparum** d. vivax

6. An example of protozoan infecting our intestine is _____

a. Plasmodium vivax **b. Entamoeba histolytica**

c. Trypanosome gambiense d. Taenia solium

7. One of the means of indirect transmission of a disease is_____

a. sneezing b. coughing

c. through placenta **d. using utensils of patients**

8. When antibodies, extracted from other animals are injected into your body, what kind of immunity do you gain?

a. Artificially active acquired immunity **b. Artificially passive acquired immunity**

c. Naturally active acquired immunity d. Naturally passive acquired immunity

9. The first vaccine injected infto a just born baby is_____

a. Oral polio b. DPT

c. DPT and Oral polio d. **BCG**

10. A child eats food rich in carbohydrates and avoids protein in its diet. Which type of nutritional deficiency will affect that child?

a. **Kwashiorkar** b. Nyctalopia

c. Diabetes d. Down syndrome

11. The normal blood sugar level under fasting condition _____

a. 80-120 mg/100 ml of blood b. 110-120 mg/100 ml of blood

c. 100-110 mg/100 ml of blood d. 90-120 mg/100 ml of blood

12. The excess glucose in blood is converted into insoluble _____ and stored in _____

a. glycogen, liver and pancreas **b. glycogen, liver and muscles**

c. glycogen, pancreas and intestine d. glycogen, brain and muscles

13. This is one of the symptom of diabetes mellitus _____

a. expulsion of used glucose in the urine

b. expulsion of unused glucose in the urine

c. expulsion of excess unused glucose in the urine

d. expulsion of excess fat in the urine

14. The clinical symptom of albinism are_____

a**. milky white coloured skin and photophobia**

b. hydrophobia

c. milky coloured hair and skin

d. all the above

15. When a child has an enlarged belly with swelling in the face and feet, it is_____

a. **Kwashiorkar** b. Night blindness

c. Scurvy d. Marasmus

16. Encephalitis is otherwise called_____

a**. Brain fever** b. jaundice

c. malaria d. tetanus

17. These are fungal diseases caused in man_____

a. a. Gonorrhoea and diarrhoea b. Malaria and filarial

c. **Dandruff and Athlete's foot** d. Ascariasis and filariasis

18. The highly contagious virus causing influenza is _____

a. **A(H_1N_1) virus** b. HIV

c. Rhino virus d. Varicella virus

19. An airborne disease affecting lungs_____

a**. Tuberculosis** b. Typhoid

c. Measles d. Mumps

20. The inanimate objects like utensils, bedding, clothes etc. are called _____

a. carriers b. **fomites**

c. infective objects d. none of the above

21. A rod shaped bacterium which causes Tuberculosis_____

a. Salmonella typhi b. Salmonelli tetani

c. **Mycobacterium tuberculosis** d. None of the above

22. Immunization with this vaccine is an effective measure to prevent Tuberculosis _____

a. DPT and Polio b. TT and Typhoid

c. **BCG vaccine** d. Measles vaccine

23. In a patient affected with malaria, these toxic substance is responsible for the chill and high fever_____

a. Haemotoxin b. **Haemozoin**

c. Haemocyanin d. Haemotoxylin

24. _____ was awarded the Nobel prize for his work on malaria in the year 1902.

a. Joseph lister b. **Sir. Ronald Ross**

c. Louis Pasteur d. Edward Jenner

25. The protozoan, parasite cause amoebiasis in man_____

a**. Entamoeba histolytica** b. Amoeba proteus

c. Plasmodium vivax d. Plasmodium falciparum

26. The proteinaceous substance produced by our body to detoxify the antigens are _____

a. antibodies b. detoxifier

c. antigenic response d. Plasmodium falciparum

27. TT means_____

a. **Tetanus Toxoid** b. Tetanus Toxin

c. Tuberculosis Vaccine d. Diphtheria Vaccine

28. _____ helps a person recovering from fracture or neurological problem.

a. **Yoga and physiotherapy** b. Yoga only

c. Physiotherapy only d. None of the above

29. _____ is a dreadful disease transmitted through sexual contact or blood and blood products.

a. **AIDS** b.Meningitis

c. Encephalitis d. HIV

30. _____ causes AIDS.

a. **Human Immuno Deficiency Virus** b. Human Immune Default Virus

c. Human Immune Defective Virus d. Human Immunizing Deficiency Virus

31. ELISA means_____

a. Enzyme Linked Immuno Sorbent Assay

b. Enzyme Linked Immuno Sorbent Antigen

c. Enzyme Lowered Immuno Sorbent Assay

d. Enzyme Linked Immuno Specific Assay

32. The sporozoites of the malarial parasite are stored in the salivary glands of_____

a. man b**. mosquito**

c. helminthic worm d. housefly

33. Pick out the viral disease_____

a. tuberculosis b. **influenza**

c. typhoid d. tetanus

34. One of the following is caused due to metabolic disorders_____

a. **alzheimer's disease** b. albinism

c. haemophilia d. bubble boy syndrome

35. One of the following is the symptoms of haemorrhage_____

a. **profuse loss of blood** b. nervous disorder

c. night blindness d. diarrhoea

36. The condition of mal functioning of the organ system or systems is called_____

a. malnutrition b. **disease**

c. under nutrition d. obesity

37. The word disease means_____

a. without pathogens b. without case

c. **without ease** d. without food

38. _____ is an organic disease.

a. **Diabetes mellitus** b. Scurvy

c. Rickets d. Sterility

39. Stroke affecting the functions of _____

a. eyes b. nose

c. head **d. brain**

40. Photophobia refers to _____

a. high sensitivity to colour b. **high sensitivity to light**

c. lack of blood d. lack of vision

41. _____ and _____ are the genetical diseases.

a. Marasmus and kwashiorkor b. Nyctalopia and beri-beri

c. **Thalassemia and down's syndrome** d. Pellagra and haemorrhage

42. Germ Theory of diseases was established by _____

a. Louis Pasteur and Edward Jenner

b**. Robert Koch and Louis Pasteus**

c. Robert Koch and Charles Darwin

d. Charles Darwin and Alexander Fleming

43.Viruses are _____

a. **parasitic** b. saprophytic

c. holophytic d. holozoic

44. An example of bacterial disease is_____

a. polio b. rabies

c**. pneumonia** d. hepatitis

45. Pick out the bacterial diseases.

a. Diabetes mellitus; renal failure; Alzheimer's disease

b. Haemophilia; sickle cell anaemia; thalassemia

c. Polio; rabies; hepatitis;

d**. Tuberculosis; leprosy; typhoid**

46. _____ attacking the keratinized layer of skin

a. Dandruff b. Athletes' foot

c**. Rigwom** d. Hookworm

47. Which is the protozoan disease?

a. common cold b. Tuberculosis

c. Influenza d. **Sleeping sickness**

48. Taeniasis is caused by _____

a**. tape worm** b. hookworm

c. liver fluke d. round worm

49. Filarial worm causes _____disease in man.

a. taeniasis b**. filariasis**

c. ascariasis d. elephantiasis

50. More than hundred strains of viruses are responsible for causing_____

a. **common cold** b. fever

c. constipation d. ulcer

51. Children are more susceptible to _____ than adults.

a. ringworm b. dandruff

c. **common cold** d. influenza

52. H_1N_1 virus is _____ in shape and causing influenza.

a. rod b. **spherical**

c. cocci d. spirillum

53. Persistant cough is a symptom of _____

a. influenza b. **tuberculosis**

c. typhoid d. malaria

54. Mycobacterium tuberculosis causes_____

a. **tuberculosis** b. typhoid

c. malaria d. AIDS

55. Salmonella typhi causes_____

a. tuberculosis b. **typhoid**

c. malaria d. AIDS

56. The viral disease is_____

a**. Rabies** b. Cholera

c. malaria d. Typhoid

57. Pick out a non-antigen_____

a. Germ b. Toxins of germs

c. New forms of protein d. **Mother's milk**

II. Match the following.

1.

1. Leprosy	a. Fungs
2. Taeniasis	b. Protozoans
3. Amoebic dysentery	c. Parasites

4. Athlete's foot d. Bacteria

Ans: 1-d,2-c,3-b,4-a

2.

1. Bubble boy syndrome a. Caused by parasite organisms

2. Renal failure b. Genetical disorder

3. Marasmus c. Metabolic disorders

4. Polio d. Nutritional deficiency

Ans: 1-b,2-c,3-d,4-a

3.

1. Haemorrhage a. Bleeding of gums

2. Pernicious anaemia b. Inability to reproduce

3. Sterility c. Destruction of RBC

4. Scurvy d. Profuse loss of blood

Ans: 1-d,2-c,3-b,4-a

4.

1. Vitamin A a. Rickets

2. Vitamin B5 b. Nyctalopia

3. Vitamin D c. Haemorrhage

4. Vitamin K d. Pellagra

Ans: 1-b,2-d,3-a,4-c

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5.

1. Virus	a. Plague
2. Bacteria	b. Dandruff
3. Fungi	c. Malaria
4. Protozoa	d. Polio

Ans: 1-d,2-a,3-b,4-c

6

1. Malaria	a. Entamoeba histolytica
2. Amoebiasis	b. H_1N_1
3. Ringworm	d. Plasmodium
4. Influenza	e. Microsporum

Ans: 1-c,2-a,3-d,4-b

III. Fill in the blanks

1. HIV causes profound immune suppression in humans. It is due to the depletion of one type of WBC which is involved in the formation of antibodies called _____

Ans: CD_4 plus T-helper cells

2. Less production of insulin leads to _____

Ans: diabetes mellitus

3. Insulin hormone secreted by _____

Ans: beta cells of islets of langerhans of pancreas

4. Albinism is an inherited disorder of melanin metabolism. _____ genes cause this disorder.

Ans: The recessive mutant

5. Causative agent of Typhoid is _____

Ans: salmonella typhi

6. Mode of transmission of Typhoid is _____

Ans: contaminated food and water

7. When a person recovers from the effect of fracture or neurotic problem which of the following treatments without involving medicines offer a great help to bring them back to do normal activities _____

Ans: yoga and physiotherapy

3. Structure and Functions of Human body organ system

I. Choose the correct answer

1. Unipolar neurons are found in the _____

a. Brain b. Spinal Cord

c. Embryonic nervous tissue d. Adult nervous tissue

2. The sensory organs contain_____

a. Unipolar neuron b**. Bipolar neuron**

c. Multipolar neuron d. Medullated neuron

3. The part of brain which controls emotional reactions in our body is _____

a. Cerebellum b. Cerebrum

c. Thalamus d**. Hypothalamus**

4. One of the following is a part of the brain stem. Pick it out.

a. Forebrain and midbrain b. Midbrain and hindbrain

c. Forebrain and hindbrain d. **Forebrain and spinal cord**

5. Spinal nerves are _____

a. sensory nerves b. motor nerves

c**. mixed nerves** d. innervating the brain

6. An endocrine gland found in the neck is _____

a. adrenal gland b. pituitary gland

c. **thyroid gland** d. pancreas

7. An endocrine gland which is both exocrine and endocrine is the _____

a. pancreas b. pituitary

c. **thyroid** d. adrenal

8. Normal blood glucose level in 1 dl of blood is _____

a. 80-100 mg/dl b. **80-120 mg/dl**

c. 80-150 mg/dl d. 70-120 mg/dl

9. The "T" lymphocytes are differentiated to resist infection in the _____

a. parathyroid gland b. lymph gland

c. **thymus gland** d. adrenal gland

10. In Meiosis-I, the pairing of homologous chromosomes take place during _____ stage.

a. leptotene b. **zygotene**

c. pachytene d. **diplotene**

11. The two systems of the human body which help in the control and co-ordination of metabolic activities are _____

a. digestive and circulatory
b. respiratory and circulatory
c. excretory of Cyton
d. **nervous and endocrine**

12. Neurotransmitters are released at the synapse by _____

a. Tips of Dendrites
b. **Synaptic Knobs**
c. Organelles of Cyton
d. Myelin sheath of Axon

13. The endocrine gland related to the immune system is _____

a. Thyroid
b**. Thymus**
c. Adrenal
d. Pineal

14. The hormone administered by doctors to a pregnant woman to help in childbirth during the time of natural delivery is _____

a. Oestrogen
b. Progesterone
c. Insulin
d. **Relaxin**

15. The important event of meiosis is the crossing over. It occurs during_____

a. Leptotene
b. **Pachytene**
c. Diplotene
d. Zygotene

16. Reduction division is the process by which gametes are produced. The cells in which reduction division take place are_____

a. germinal epithelial cells
b. the sensory epithelial cells
c. **cuboidal epithelial cells**
d. columnar epithelial cells

17. In Amoeba, the cell division takes place _____

a. involving changes in the chromatin reticulum

b**. leading involving changes in the chromatin reticulum**

c. leading to reduction in the number of chromosomes

d. without dividing the nucleus

18. Pick out the item which has sequential arrangement.

a. zygotene → $Leptotene \rightarrow Pachytene \rightarrow diplotene \rightarrow Diakinesis$

b. Diakinesis → $zygotene \rightarrow Leptotene \rightarrow Pachytene \rightarrow Diplotene$

c. Leptotene → $\boldsymbol{zygotene \rightarrow Pachytene \rightarrow Diplotene \rightarrow Diakinesis}$

19. Polio is a viral disease and the affected child suffers from physical disability of limbs. Which system of the body is mostly affected due to this infection?

a. **Nervous system** b. Digesrive system

c. Respiratory system d. excretory system

20. Blinking when a beam of light is suddenly focussed on the eyes and sudden withdrawal of hand upon touching a hot body are some of the examples of reflex actions. Which part of the central nervous system acts as the centre these actions?

a. Forebrain b.**Spinal cord**

c. Hindbrain d. Synapse

21. The following are the parts of a neuron:

i. Axon ii. Terminal branches iii. Cyton iv. Dendrites

The correct pathway of a nerve impulse through these parts are _____

a. (ii)(i)(iv)(iii) **b. (iv)(iii)(i)(ii)**

c. (ii)(iv)(i)(iii) d. (i)(iv)(ii)(iii)

22. For minor surgeries in the body, doctors administer local anaesthesia to a part of the body so that the pain will not be felt by the patient. At which part, do you think, the nerve impulse is being arrested due to the effect of anaesthesia?

a. at cyton b. at axon

c. **at synapse** d. in the middle of axon

23. Which are the two systems do the function of co-ordination_____

a. Digestive system and endocrine system

b. Endocrine system and respiratory system

c. Nervous system and endocrine system

d. Sensory organs only

24. These are the functional and structural units of the nervous system_____

a. Neurons b. Myelin sheath

c. Brain d. Nephrons

25. _____ in a nerve cell contain Nissl's granules.

a. Axon b. **Cyton**

c. Axon and Cyton d. Nucleus

26. _____ neurons forms the cerebral cortex of our brain.

a**. Myelinated neurons** b. Non myelinated neurons

c. Neurilemma d. Schwann cells

27. The junction between two nerve cells is _____

a. **Synapse** b. Cell body

c. Axon d. Myelin fibres

28. _____ forms the central nervous system.

a. Nerves only

b. Brain and spinal cord

c. Spinal cord and nerves

d. Sympathetic and parasympathetic nerves

29. The sheet nervous tissue which unites the two cerebral halves is _____

a. corpus callosum b. corpus luteum

c. corpus albicans d. hypothalamus

30. _____ regulates and co-ordinates the voluntary muscles as in running or walking.

a. Pons b. Cerebrum

c. **Cerebellum** d. Medulla

31. CSF means_____

a. **Cerebro spinal fluid** b. Central spinal fluid

c. Cortex spinal fluid d. None of the above

32. _____ pairs of cranial nerves arise from the brain.

a. Ten b. Seven

c. Six **d.Twelve**

33. _____ pairs of spinal nerves arise from the spinal cord.

a. Sixteen b. Twelve

c. Ten d. **Thirty one**

34. _____ are ductless glands.

a. Sensory glands b. **Endocrine glands**

c. Salivary glands d. Exocrine glands

35. This endocrine gland is found in the thorax region_____

a. Pineal gland b. Ovary

c. **Thymus gland** d. Pancreas

36. The chemical substances secreted by endocrine glands are _____

a. Auxin b. **Hormones**

c. dilute HCI d. Antibodies

37. The gonads in woman are _____

a. sperm b. testes

c. egg **d. ovaries**

38. Excess production of growth hormone in adolescents causes_____

a. Myxoedema **b. Acromegaly**

c. Dwafism d. Goitre

39. Thyroid gland produces a hormone called_____

a. **Thyroxine** b. tyrosine

c. Trypsin d. Oxytocin

40. Thyroxine is an _____ protein.

a. enzymatic b**. iodinated**

c. non-iodinated d. simple

41. Less secretion of thyroxine cause_____ in children.

a. Myxoedema b. Goitre

c**. Cretinism** d. Acromegaly

42. _____ gland plays a dual role as an exocrine and an endocrine gland.

a. Thyroid b. **Pancreas**

c. Adrenal d. Pituitary

43. Less production of _____ causes Diabetes mellitus.

a. Glucagon b. Thyroxine

c. Adrenaline **d. Insulin**

44. The exocrine parts of pancreas produce_____

a. glycogen b. glucagon

c. **pancreatic juice** d. insulin

45. Alpha cells of islets of Langerhans of pancreas produces_____

a. insulin b. insulin and amylin

c**. glucagon** d. amylin alone

46. _____ hormone is secreted when the glucose level is low in the blood.

a. Insulin b. Glycogen

c. **Glucagon** d. Both insulin and glucagon

47. This hormone maintains minerals metabolism in our body_____

a. **Aldosterone** b. Cortisone

c. Adrenaline d. Nor epinephrine

48. The appearance of secondary sexual characters like growth of public hairs, feminine body etc is due to the hormone called _____

a. Androgen b. Testosterone

c. **Oestrogen** d. Progesterone

49. This hormone in female maintains pregnancy and regulates menstrual cycle_____

a. Relaxin b. Androgen

c. Oestrogen **d. Progesterone**

50. Parathormone and calcitonin are the hormones secreted by _____

a. thyroid gland b. adrenal gland

c. **parathyroid gland** d. pancreas

51. Binary fission is an asexual reproduction found in _____

a. Higher plants b. Higher animals

c. Man d. **Amoeba**

52. _____ stimulates the secretion 'T' Lymphocytes to resist infection.

a**. Thymosin** b. Adenosine

c. Adrenaline d. Non-adrenaline

53. Mitotic cell division takes place in these cells of plants and animals_____

a. **somatic cells** b. sex cells

c. epithelial cells d. all the above

54. The paired chromosomes are called _____

a. Trivalents b. **Bivalents**

c. Synaptic pairs d. Similar chromosomes

55. Terminilization takes place in this stage of meiosis I_____

a. Pachytene b. Zygotene

c. Diplotene d**. Diakinesis**

56. The division of cytoplasm is called as_____

a. Karyokinesis b. Karyotyping

c. **Cytokinesis** d. None of these

57. At the end of meiotic cell division, _____ cells are produced.

a. Diploid sex cells b. Zygote

c. **haploid sex cells** d. Callus

58. The inheritance of characteristics through generations is called_____

a.evolution b. embryogenesis

c. **heredity** d. physiology

59. Meiosis-II is similar to _____

a. amitosis b**. mitosis**

c. meiosis-I d. meiosis-II

60. Insulin favours conversion of _____ into glycogen.

a**. glucose** b. starch

c. galactose d. maltose

61. Which produces an anti-inflammatory reaction?

a. Glucagon b. Thyroxine

c. **Cortisone** d. Ovaries

62. _____ relays the information from the cerebrum to cerebellum.

a. Thalamus b. Mid brain

c. Medulla oblongata **d. Pons**

II. Match the following.

1.

1. Thyrotrophic hormones	a. To produce the eggs and sperm
2. Adrenocorticotropic hormone	b. To produce the hormone cortisone
3. Follicle stimulating hormone	c. Milk production after child birth
4. Lactogenic Hormone	d. Growth of thyroid gland

Ans: 1-d,2-b,3-a,4-c

2.

1. Pituitary gland	a. Personality Hormone
2. Thyroid gland	b. Cytogenic

3. Adrenalin	c. Endocrine Orchestra
4. Testes	d. Emergency hormone

Ans: 1-c,2-a,3-d,4-b

3.

1. Pineal gland	a. Thyroxin
2. Thymus gland	b. Oxytocin
3. Neurohypophysis	c. Melatonin
4. Thyroid gland	d. Thymosin

Ans: 1-c,2-d,3-b,4-a

4.

1. Amitosis	a. Body cells
2. Mitosis	b. Unicellular animal cells
3. Meiosis	c. Germinal epithelial cells
4.Conjugation	d. Bacterium

Ans: 1-b,2-a,3-c,4-d

5.

1. thymus	a. Head
2. Pancreas	b. Thorax
3. Pineal	c. Neck
4. Thyroid	d. Abdomen

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Ans:1-b,2-d,3-a,4-c

6.

1. Dwarfism	a. Excess production in adolescents
2. Gigantism	b. Less production in children
3. Acromegaly	c. Excess production in children

Ans:1-b,2-c,3-a

7.

1. Thyroid gland	a. Abdomen
2. Pituitary gland	b. Thorax
3. Pancreas	c. Head
4. Thymus gland	d. Neck

Ans:1-d,2-c,3-a,4-b

III. Fill in the blanks.

1. The dendrites transmit electrical impulses towards the _____

Ans:cyton

2. _____ convert electrical impulse into chemical impulse and pass it to the neighbouring neuron.

Ans: neuro transmitters

3. A major conducting centre for sensory and motor signalling.

Ans: thalamus

4. Two antagonistic divisions of autonomic nervous system.

Ans: sympathetic nerves and parasympathetic nerves

4. Reproduction in plants

I. Choose the correct answer.

1. The method of reproduction in unicellular organisms like amoeba and bacteria in which they split into two equal halves and produce new ones is called_____

a. fragmentation b. **binary fission**

c. budding d. spore formation

2. In sexual reproduction of flowering plants, the first event involved in this is _____

a. fertilization b. germination

c. regeneration d. **pollination**

3. Which of the following statement is true?

a. Thin-walled non-mobile spores are called zoospores.

b. A motile asexual spore produced by some algae, bacteria and fungi are Akinetes.

c. Uninucleate, non-motile, asexual spores produced by fungs are called conidia.

d. Thick-walled vegetative cells produced by algae during adverse conditions are called aplanospores.

4. The fertilized ovary is a fruit. The fruit that develops from a single flower with multicarpellary, apocarpous superior ovary is_____

a. Aggregate fruit b. Composite fruit

c. Simple fruit d. Multiple fruit

5. If a water soaked seed is pressed, a small drop of water comes out through the_____

a. stomata b. lenticels

c. **micropyle** d. radical

6. The mango fruit is called a stone fruit because it has_____

a. skinny epicarp b. stony mesocarp

c. fleshy endocarp **d. hard endocarp**

7. Pick out the wrong statement.

a. In a dicot seed there is a short longitudinal whitish ridge called the raphae.

b. The minute opening in a dicot seed is known as micropyle.

c. The rudimentary stem portion is known as radical.

d. The rudimentary root portion is called radical.

8. Consider the following statements regarding the dispersal of fruits and seed by wind and select the correct answer.

a. Fruits and seeds are dispersed with a sudden jerk by an explosive mechanism.

b. The fruits of tridax carry a persistent calyx modified into pappus.

c. The fruits of xanthium have sharp pointed stiff hooks

d. The mesocarp of coconut is fibrous.

9. The product of triple fusion which acts as nutritive tissue for the development of an embryo is _____

a. zygote b. placenta

c. scutellum d**. endosperm**

10. The disadvantage of self-pollination is _____

a. There is no wastage of pollen grains

b. The seeds are less in number

c. Self-pollination is sure in bisexual flowers

d. flowers need not depend on agents of pollination

11. The flower is important to a plant because it helps in_____

a. attracting b. production of nectar

c. pollination d. **sexual reproduction**

12. The essential organs of the flower are_____

a. Calyx and Corolla b. **Androecium and Gynoecium**

c. Calyx and Androecium d. Corolla and Gynoecium

13. Cross pollination is important for producing_____

a. new varieties of plants b. plants with better growth

c. disease resistant plant d. **all of the above**

14. Anemophily occurs in_____

a. Vallisneria **b. Grass**

c. Coconut d. Datura

15. Which of the following structure/ arrangement favours entamophily?

a. Pollen grains with wings and feathery stigma

b**. Colourful petals and nectar secretion**

c. A bunch of flowers with less pollen

d. Pollen grains with mucous covering

16. Post-fertilization, the changes into a/an_____

a. **seed** b. fruit

c. endosperm d. pericarp

17. Which of the following is correctly matched?

a. False fruit-mango b. Multiple fruit-apple

c**. Aggregate fruit-polyalthia** d. Caryopsis-banana

18. Identify the mismatched pair.

a. Legume-Dry dehiscent fruit b. Cypsela- Dry indehiscent fruit

c. Pome- Fleshy fruit **d. Regma- Resembles legume**

19. Conversion of milk into curd takes place by _____

a. Lactobacillus b. Acetobacter

c. Streptococcus d. Staphylococcus

20.. These algae undergoes fragmentation and each fragment grows into a new individual_____

a. Diatoms b**. Spirogyra**

c. Moss d. Funaria

21. Hydra reproduce by_____

a. Binary fusion b. Fragmentation

c. Stem cutting d**. Budding**

22. _____ is the male part of a flower.

a. Ovary b. Stigma

c**. Androecium** d. Carpels

23. Gynoecium has three parts namely_____

a. astigma, pollen and ovary b. **stigma, style and ovary**

c. anther, filament and pollen d. filament, stamen and stigma

24. Self pollination is also known as _____

a**. autogamy** b. autochory

c. allogamy d. allograft

25. There is no wastage of pollen grain when _____ takes place.

a. **self pollination** b. cross pollination

c. self and cross pollination d. none of the above

26. Pollination by birds is called _____

a. Chiropterophily b. Zoophily

c. **Ornithophily** d. Anemophily

27. In grass and pine, pollination takes place by _____

a. water b. birds

c. **wind** d. bat

28. The fertilized egg is known as _____

a**. zygote** b. embryo

c. seed d. fruit

29. The secondary nucleus is _____ in nature

a. haploid b. **diploid**

c. triploid d. neither haploid nor diploid

30. The fruit wall is called_____

a. epicarp b. mesocarp

c. endocarp d. **pericarp**

31. Seedless grapes develop_____

a. with the help of gametes b**. without the act of fertilization**

c. after fertilization d. from the endosperm

32. Dry indehiscent fruits _____ open at maturity and the seeds are liberated by the secay of pericarp.

a. split b**. do not split**

c. sometimes split d. mericarp

33. In _____ the aggregate fruit has a cluster of fruitlets attached to a common stalk.

a. Annona squamosa b. Paddy

c. **Polyalthia** d. Coconut

34._____ is a simple fleshy fruit which develops from multicarpellary, superior ovary with axile placentation.

a. Tomato b. **Orange**

c. Apple d. Mango

35. In _____, the thalamus becomes fleshy and develops into an edible fruit.

a. **apple** b. orange

c. cucumber d. mango

36. Paddy is an example of simple indehiscent _____ fruit known as_____

a. **one seeded, caryopsis** b. many seeded, caryopsis

c. many seeded, syconus d. one seeded, capsule

37. The root sheath is _____

a. **coleorrhiza** b. coleptile

c. chaff d. scutellum

38. The roots formed from the lower nodes of the stem are called_____

a. tap root b. fibrous root

c**. adventitious roots** d. root hairs

39. seeds with two cotyledons_____

a. monocotyledon b**. dicotyledon**

c. embryo d. radical

40. Fruits of this plant carry a persistent calyx modified into a pappus which aids in the dispersal by wind_____

a. coconut b. **tridax**

c. drumstick d. lotus

41. Can a female sheep alone produce new young ones?

a. No, it needs a male sheep to produce young ones

b. It can produce ones of left its own

c. Vegetative propagation produce young ones

d. Through the aplanospores

42. A seed dispersed by wind is called_____

a. Autochory **b. Anemochory**

c. Hydrochory d. Zoochory

II. Match the following.

1.

1. Berry a. Orange

2. Hesperidium b. Cucumber

3. Pome c. Apple

4. Pepo d. Tomato

Ans:1-d,2-a,3-c,4-b

2.

1. Lomentum a. Coriandrum

2. Cremocarp b. Fig

3. Sorosis c. Acacia

4. Syconus d. Jack fruit

Ans: 1-c,2-a,3-d,4-b

3.

1. Aplanospores a. Uninucleate, non-motile asexual

2. Zoospores b. Secrete thick additional wall layer

3. Akinetes c. Non-motile, ovoid bodies

4. Conidia d. Motile, asexual, flagellum

Ans:1-d,2-c,3-b,4-a

4.

1. Binary fission a. Bryophyllum

2. Fragmentation b. Bacteria

3. Budding c. Penicillium

4. Spore Formation d. Spirogyra

Ans: 1-b,2-d,3-a,4-c

5.

1. Multiple fruit a. custard apple

2. Aggregate fruit b. allogamy

3. Self pollination c. autogamy

4. Cross pollination d. jack fruit

Ans:1-d,2-a,3-c,4-b

6.

1. Calyx a. Stamens

2. Androecium b. Carpels

3. Corolla c. Sepals

4. Gynoecium d. Petals

Ans: 1-c,2-a,3-d,4-b

7.

1. Zoophily a. Birds

2. Hydrophily b. Air

3. Anemophily c. Insects

4. Ornithophily d. Animals

5. entamophily e. Water

Ans:1-d,2-e,3-b,4-a,5-c

8.

1. Legume a. Cotton

2. Follicle b. Beans

3. Septicidal capsule c. Lady's finger

4. Loculicidal capsule d. Calotropis

Ans:1-b,2-d,3-a,4-c

9.

1. Achene a. Cashewnut

2. Caryopsis b. Tridax

3. Cypsela c. Paddy

4. Nut d. Mirabilis

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Ans: 1-d,2-c,3-b,4-a

10.

1. autochory	a. Wind dispersal
2. Anemochory	b. Dispersal by water
3. Hydrochory	c. Dispersal by animals
4. Zoochory	d. Explosive mechanism

Ans: 1-d,2-a,3-b,4-c

III. Fill in the blanks

1. _____ is a fertilized ovule.

Ans: Seed

2. Orange develops from multicarpellary, _____, ovary with _____ placentation.

Ans: superior, axile

3. In jack fruit, the edible part represents the _____, which is bag and seeded.

Ans: perianth, one

4. Roots formed from the lower nodes of the stem are called _____ roots.

Ans: adventitious roots

5. Each ovule carries an _____ within it, within lies the _____ cell, the female gametes.

Ans: embryo sac, egg

5. A Representative study of mammals

I. Choose the correct answer.

1. Select important characteristic features of mammals_____

a. four-chambered heart b. fore-limbs and hind limbs

c. milk-producing glands d. post anal tail

2.Carnicorous animals use these teeth to tear flesh _____

a. incisors **b. canines**

c. premolars d. molars

3. The Henle's loop of nephron is mainly responsible for reabsorption of water in the kidney. Which of the following has a long loop of Henle in its nephrons to conserve water?

a. polar bear **b. camel**

c. frog d. whale

4. Which blood cells of mammals are concerned with immunity?

a. Young Erythrocytes b. **Leucocytes**

c. Thrombocytes d. Matured Erythrocytes

5. You were given two unlabelled slides with blood smears of an amphibian and a mammal. You would differentiate the blood samples by observing the _____

a.colour b. **nature of RBC's**

c. nature of WBC's d. contents of plasma

6. For the digestion of cellulose, an enzyme called cellulose is required. Some mammals lodge cellulose producing bacteria in their digestive system by offering them food and shelter. These mammals are mostly_____

a**. Herbivores** b. Carnivores

c. Omnivores d. Sanguivores

7. Forelimbs of mammals have a common basic structure or pattern, but are different in their usage/ function in different animals. They can be called _____

a**. Homologous organs** b. Analogous organs

c. Vestigial organs d. Rudimentary organs

8. Sensitive whiskers are found in_____

a. Bat b. Elephant

c. Deer d. **Cat**

9. The tusks of elephants are modified _____

Ans: incisors

10. Pick out an animal which has a four-chambered stomach_____

a. Elephant b. Dolphin

c. **Deer** d. Kangaroo

11. Normal body temperature of man is _____

a. **98.4-98. 6^0 F** b. 96.6-96.8^0 F

c. 94.4-98.6^{0}F d. 98.4-99.6^0 F

12. Mitral valve is found between_____

a. Right auricle and right ventricle b. **Left auricle and left ventricle**

c. right ventricle and pulmonary artery d. Left ventricle and aorta

13. Assertion(A): Mammalian heart is called myogenic heart.

Reason®: Heartbeat is regulated by a specialized muscle bundle (pacemaker) in mammals.

a. **Both 'A' and 'R' are true and 'R' explains 'A'**

b. Both ‘A’ and ‘R’ are true but ‘R’ doesn’t explain ‘A’

c. ‘A’ is true but ‘R’is false

d. ‘A’ is false but ‘R’ is true.

14. One of the following groups contains a non mammalian animal. Pick up the group.

a. dolphin, walrus, porcupine, rabbit, bat

b. elephant, pig, horse, donkey, monkey

c. antelope, deer, cow, buffalo, black buck

d. **dog, cat,crocodile, lion, tiger**

15. The epidermis of mammals contains_____

a**. hair, bristle, quills** b. hair, nail, claw

c. hair, bristle,horn d. hair, nail, scale

16. Animals like _____ have long, sharp, stiff hairs called quills to protect them from predators.

a.cat and dog b. porcupine and Asian elephant

c. porcupine and hedge hogs d. whales and dolphins

17. _____ are the only mammals capable of powered flight.

a. Bats b. Birds

c. Kiwi d. Penguin

18. _____ have developed abdominal pouches to bear the tender young ones.

a. Marsupials b. Man

c. Polar bears d. Camels

19. _____ RBC's cells are without nucleus.

a. Mammalian b. Reptilian

c. Avian d. None of these

20. _____ discovered the circulation of blood in man.

a. Louis Pasteur b. William Harvey

c. **Alexander Fleming** d. Anthon Von Leeuwenhoek

21. Heart is covered by a protective double walled sac called _____

a. Peritoneum b. Pineal

c. **Pericardium** d. Pleural membrane

22. Tricuspid valve is found in _____

a**. right auriculo ventricular aperture** b. left auriculo ventricular aperture

c. pulmonary artery d. aortic arch

23. _____ is known as the 'river of life'.

a. **Blood** b. Lymph

c. Saliva d. Mucus

24. These blood cells are concerned with blood clotting_____

a. erythrocytes b. leucocytes

c**. thrombocytes** d. thymocytes

25. _____ are the structural and functional units of the kidneys.

a. Neurons b. **Nephron**s

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c. Medulla d. Cortex

26. A network of blood capillaries in the malpighian capsule of a nephron is _____

a. **glomerulus** b. collecting tubule

c. Bowmann's capsule d. Henle's loop

27. Social attachments between animals is called_____

a. finger printing **b. imprinting**

c. parental care d. sexual imprinting

28. _____ grow sensitive bristles on their snouts.

a. Cats and bats **b. Whales and dolphins**

c. Horse and donkey d. Whales and sharks

29. The heart is made up of special types of muscles_____

a. striated muscle b. smooth muscle

c. **cardiac muscle** d. muscular sheath

30. _____ are the receiving chambers of blood.

a. Ventricles **b. Auricles**

c. Arteries d. Valves

31. _____ are thick walled lower chambered of the heart.

a. Pericardium b. Arteries

c. Auricles d**. Ventricles**

32. The closure of the valves of the heart produce sounds as_____

a. dub and dub b. dub and lubb

c. lubb and dub d. lubb and lubb

33. The liquid component of blood is _____

a. RBC b. WBC

c. platelets d. **plasma**

34. Master chemists of our body are kidneys. Justify.

a. kidneys acquire all chemicals taken in the body

b. maintain the chemical composition of blood

c.kidneys send out all chemicals taken in the body

d. kidneys store the various chemicals taken in the body

II. Match the following

1.

1. Blood platelets	a. expired air
2. Kidneys	b.sweat
3. Skin	c. blood clotting
4. Lungs	d. urine

Ans: 1-b,2-d,3-b,4-a

2.

1. Auricles	a. right auriculo ventricular aperture
2. Ventricles	b. thin walled

3. Bicuspid c. thick walled

4. Tricuspid d. left auriculo ventricular aperture

Ans: 1-b,2-c,3-d,4-a

3.

1. Whale a. Quills

2. Porcupine b. Whiskers

3. Elephant c. Bristles

4. Cats d. Tusk

Ans:1-c,2-a,3-d,4-b

4.

1. Network of capillaries a. Medulla

2. Outer part of the kidney b. Bowman's cup

3. Inner part of the kidney c. glomerulus

4. Double walled cup d. Cortex

Ans:1-c,2-d,3-a,4-b

5.

1. Bats a. Heterodont dentition

2. Carnivorous animals b. Four chambered stomach

3. Antelopes c. Powered flight

4. Kangaroo d. Andominal pouch

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Ans: 1-c,2-a,3-b,4-b

5.

1. Skin	a. Nitrogenous waste products
2. Lungs	b. Excess water and salt
3. Kidneys	c. Carbon-di-oxide and water vapour

Ans:1-b,2-c,3-a

7.

1. Man	a. make holes in the ground
2. Whale	b. to gallop
3. Bandicoot	c. hold an object
4. Horse	d. as oars to swim

Ans: 1-c,2-d,3-a,4-b

III. Fill in the blanks

1. The tearing teeth of carnivorous animals_____

Ans: canine

2. The tusks of an elephant are modified teeth of _____

Ans: in cisors

3. The heartbeat of a normal human is _____ times in a minute.

Ans: 72

4. _____ are the only mammals capable of powered flight.

Ans: Bat

5. Mitral valve is found between _____

Ans: left auricle and left ventricle

6. Mammals such as cows, buffaloes have_____

Ans: four chambered stomach

7. Milk producing glands are modified _____

Ans: sweat glands

8. In summer, we sweat more to conduct the heat out in the sweating process.

Ans: cooling up mechanism

9.. Nephrons are the functional unit of _____

Ans: kidneys

10. The contraction phase of the muscles of the heart _____

Ans: systole

11. This distensible, muscular sacs called as 'store house of urine'.

Ans: urinary bladder

6. Life Processes

I. Choose the correct answer

1. In monotropa the special type of root which absorbs nourishment is the _____

a. Haustoria **b. Mycorrhizal root**

c. Clinging root d. Adventitious root

2. The product obtained in the Anaerobic respiration of yeast is _____

a. Lactic acid b. Pyruvic acid

c. **Ethanol** d. Acetic acid

3. The roots of a coconut tree are seen growing far from the plant. Such a kind of movement of root for want of water is _____

a. Phototropism b. Geotropism

c. Chemotropism d. **Hydrotropism**

4. The xylem in the plants is responsible for_____

a. transport of water b. transport of food

c. transport of amino acids d. transport of oxygen

5. The autotrophic nutrition requires_____

a. CO_2 and water b. chlorophyll

c. sunlight d. **all the above**

6. Leaf pores/stomata help in _____

a. intake of CO_2 during photosynthesis

b. release of CO_2 during photosynthesis

c. release of water vapour during transpiration

d. All of these

7. _____ of green plants are called factories of food production.

a. Mitochondria b**. Chloroplasts**

c. Endoplasmic reticulum d. Nucleus

8. The special root-like structure of plant parasites in cuscuta and viscum are called _____

a. Rhizoids b. **Haustoria**

c. Hyphae d. Stolons

9. Pick out the odd one: The parts of the alimentary canal are_____

a. pharynx b. mouth

c. buccal cavity **d. pancreas**

10. The process in which metabolic wastes are removed is _____

a. Conduction b. **Excretion**

c. Respiration d. all of these

11. The green pigment in the leaf_____

a. Chlorophyll b. Leucoplast

c. Chromoplast d. None of these

12. These cells in vertebrate animals are defensive in function_____

a. Leucocytes b. Erythrocytes

c. Thrombocytes d. None of the above

13. Enzymes are called as _____

a**. bio-catalyst** b. catalyst

c. chemical substances d. starch

14. Complete oxidation of a glucose molecule in aerobic respiration produces_____ ATP molecules.

a. 20 b. 21

c. 37 **d. 38**

15. _____ is the energy currency for the most cellular processes.

a. ADP **b. ATP**

c. NADP d. $NADH_2$

16. Amoeba, Hydra etc respire through their_____

a. gills b. moist skin

c. **body surface** d. lungs

17. Respiratory organ for a fish is _____

a. moist skin b. scales

c. **gills** d. fins

18.. The _____ structures surrounded by blood capillaries provide a surface for exchange of gases in human.

a. bronchi b. bronchioles

c. **alveoli** d. lungs

19.The _____ is the site for photosynthesis.

a. root b. stem

c**. leaf** d. flower

20. _____ conducts food from leaves to all parts of a plant.

a. Phloem b. Xylem

c.Tracheids d. Vessels

21. The loss of water from the aerial parts of the plant in the form of vapour is called _____

a. Respiration b. **Transpiration**

c. Nutrition d. Transportation

22. Translocation occurs in the part of vascular tissue called _____

a. tracheids b. xylem

c. **phloem** d. leaf

23. _____ is a colourless fluid, similar to plasma of blood, which helps in transportation.

a. Blood b. Mucus

c. Lymph d. Cerebro-spinal fluid

24. _____ excrete their wastes through contractile vacuoles.

a. birds b. amphibians

c. annelids d. **protozoans**

25. _____ is an artificial process used to remove nitrogenous waste products when the kidneys fail to function.

a. **Dialysis** b. Dialyser

c. ECG d. Glucometer

26. The special kidneys used to collect extra from the coelomic cavity of annelids are _____

a. Nephrons b. Neurons

c. **Nephridia** d. Collecting tube

27. The excretory products of birds are composed of _____

a. **uric acid** b. dilute HCl

c. urea d. ammonia

28. _____ is the main excretory product in mammals.

a. Ammonia b. Urea

c. **Uric acid** d. None of the above.

29. In mammals, _____ and _____ sytem help in co-ordination.

a. digestive system and nervous b. nervous system and lymphatic

c. nervous system and endocrine d. endocrine and muscular system

30.Response of the plant to the direction of light is _____

a. Chemotropism d. Hydrotropism

c. **Phototropism** d. Geotropism

31. When the pollen tubes towards the ovule, it shows _____ types of movement.

a. phototrophic **b. chemotrophic**

c. geotrophic d. hydrotropic

32. The chemical substances secreted by the endocrine glands are called _____

a. Lymph **b. Hormones**

c. Cell sap d. Complex compounds

33. Response of the plant to the direction of gravity is_____

a. Hydrotropism b. Chemotropism

c. Phototropism d**. Geotropism**

34. In xylem tissues the waste products are stored as_____

a. resin b. wax

c. latex d. oil

35. _____ is a colourless fluid.

a. Blood b**. Lymph**

c. Grape juice d. Olive oil

36. The transport of soluble products of photosynthesis is called _____

a. Transpiration b. Transduction

c**. Translocation** d. Transformation

37. The nervous system consists of tissues which conducts_____

a. water b. food

c. blood **d. messages**

38. Transpiration occurs through_____

a. micropyle **b. stomata**

c. root d. stem

39. The radical portion of an embryo grow towards_____

a. light b. chemical

c**. gravity** d. water

40.The constituents of the phloem which act as a pipeline from leaves to the other parts of the plant are_____

a. companion cells b**. sieve tubes**

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c. tracheids d. vessels

41. ADP + Pi → _____

a. **ATP** b. ADPPi

c. ADPi d. ADP

42. Cytopharynx, a cytoplasmic depression to swallow food is seen in _____

a. Amoeba b. **Paramoecium**

c. Hydra d. Spinges

43. An advance form of digestion is seen in_____

a. fish b. frog

c. birds d. **man**

44. Complex food swallowed is broken down into simpler food molecules by the action of enzymes in the _____

a. hormones b. catalyst

c. **digestive juice** d. chemicals

45.The translocation by phloem is achieved by _____

a. **energy** b. chemicals

c. hormones d. food

46. _____is transferred into phloem tissue using energy from ATP.

a. amino acids b. lipid

c. **sucrose** d. fructose

47. Lymph carries_____

a. CO_2 b. O_2

c. **digested and absorbed fat** d. fat

48. Which is the nearest and richest source of water for plants?

a. soil b. chlorophyll

c. oxygen d. CO_2

49. _____ takes place in the cytoplasm.

a. Glycolysis b. Kreb's cycle

c. ETP d. Oxidative decarboxylation

50. Oxidation of pyruvic acid takes place in the _____

a. Cytoplasm b**. Mitochondria**

c. Golgi body d. Nucleus

II. Match the following.

1.

1. Hydra a. Gills

2. Fish b. Body surface

3. Frog c. Stomata

4. Plants d. Lungs and skin

Ans: 1-b,2-a,3-d,4-c

2.

1. Earthworm a. Simplest form of co-ordinating system

2. Insects b. Dual nerve cord

3. Worm c. Ganglia

4. Man d. Brain

Ans:1-b,2-c,3-a,4-d

3.

1. Green plants a. fungi

2. Non-green plants b. saprophytes

3. Cuscutta c. autotrophs

4. Monotropa d. parasitic

Ans: 1-c,2-a,3-d,4-b

4.

1. Nutrition a. Food and O_2 is carried

2. Respiration b. Metabolic-waste by products

3. Transportation c. Intake and outgoing of O_2 and C O_2

4. Excretion d. Consumption of food

Ans: 1-d,2-c,3-a,4-b

5.

1. Xylem a. lymph fluid

2. Phloem b. blood

3. Heart c. water

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4. Lymph d. food

Ans: 1-c,2-d,3-b,4-a

6.

1. Sunlight	a. absorbed from the soil
2. Carbondi-oxide	b. green pigments in the chloroplasts
3. Chlorophyll	c. assimilated from the atmosphere
4. Water	d. energy from the sun

Ans: 1-d,2-c,3-b,4-a

7.

1. Unicellular Protozoans	a. Diffuse out through the cell membrane
2. Coelenterates	b. Excretory tubes
3. Round worms	c. Nephridia
4. Annelids	d. Contractile vacuoles

Ans: 1-d,2-a,3-b,4-c

8.

1. Direction of Light	a. Hydrotropism
2. Direction of gravity	b. Phototropism
3. Direction of water	c. Chemotropism
4. Direction of chemicals	d. Geotropism

Ans: 1-b,2-d,3-a,4-c

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III. Fill in the blanks

1. During photosynthesis, CO_2 and water are converted into_____

Ans: carbohydrates

2. When the digestion takes place in the human of alimentary canal, it is called digestion.

Ans: extracellular

3. _____ is formed during _____

Ans: Pyruvic acid, glycolysis

4. _____are one of the constituents of the phloem.

Ans: sieve tubes

5. Transportation in lower animals like amoeba and paramecium takes place by _____

Ans: diffusion

7. Conservation of Environment

I. Choose the correct answer.

1. Which of the following groups contain only bio degradable items?

a**. Grass, flowers and leaves** b. Grass, wood and plastic

c. Fruit peels, Cake and plastic d. Cake, wood and glass

2. Which of the following constitute a food chain?

a. Grass, wheat and mango b**. Grass, goat and human**

c. Goat, cow and elephant d. Grass, fish and goat

3. Which of the following are environmental friendly practices?

a. Carrying cloth bags for shopping

b. Switching off light and fans when not in use

c. Using the public transport

d. **All the above**

4. What is called as 'black gold'?

a. Hydrocarbons b. Coal

c. **Petroleum** d. Ether

5. Based on the food chain, pick odd one out:

Plants→ Grasshopper→ Frog→ Tiger→ Snake

Ans: Tiger

6. Example for product of green chemistry is_____

a. Plastic b. Paper

c. **Bio plastics** d. Halogen flame and retardants

7. _____ is a green house gas which causes climate change and global warming.

a. Hydrogen b. Oxygen

c. Nitrogen d**. Carbon dioxide**

8. The _____ form decomposers in the pond ecosystem.

a. Plants b. **Bacteria**

c. Frogs d. Phytoplanktons

9. _____ is used in seeding clouds.

a. **Potassium iodide** b. Calcium carbonate

c.Sulphurdioxide d. Ammonium phosphate

10. An example for fossil fuel is _____

a. Copper b. Iron

c. Magnesium d. **Coal**

11. Air pollution is caused by transport exhaust fumes and emission of gases like SO_2, CO_2, NO_2 from industries. Similarly, water pollution is caused by _____

a**. sewage** b. crop cultivation

c. rain d. soil erosion

12. If wild animals are killed, what difficulty would we face?

a. **imbalance in nature** b. decrease in frog rain

c. decrease in population d. increase in rain

13. Water is an essential commodity for survival. What can we do to help increase water resources?

a. deforestation b. reducing the use of vehicles

c. the burning of the wastage d**. afforestation**

14. The tiger and the lion are carnivores. Likewise the elephant and the bison are_____

Ans: Herbivorous

15. Assertion(A): Coal and petroleum are called fossil fuels

Reason®: Fossil fuels are formed from the remains of dead organisms after millions of years.

a**. Both 'A' and 'R' are true and 'R' explains 'A'**

b. Both ‘A’ and ‘R’ are true but ‘R’ doesn’t explain ‘A’

c. Only ‘A’ is true but ‘R’ is false

d. ‘A’ is false but ‘R’ is false

16. Compressed Natural Gas(CNG) is considered a better fuel than coal/ petroleum, because_____

Ans: Compressed Natural Gas (CNG) does not cause pollution

17. Now a day’s water bottles and lunch boxes are made from agricultural products like fruit pulp. These are called _____

Ans: bio-plastics

18. Hazardous bio-medical wastes are disposed off by means of_____

a. landfills b. **incineration**

c. deep well injections d. compost pits

19. _____ are examples of bio-medical wastes.

a. Toxic drugs and human anatomical wastes

b. Rubber and plastics

c. Toxic drugs and glass

d. Paper and glass

20. Desalination involves _____ and _____

a. sublimation and evaporation **b. evaporation and recondensation**

c. distillation and sublimation d. evaporation and boiling

21. _____ is one of the Tiger reserve in India.

a. Bharatpur Bird Sanctuary b. Gir National Park

c. **Sunder bans National Park** d. Mudumalai Wild life Sanctuary

22. _____ is the India's first national park.

a.Mukkurthi National Park b. Bandhipur National Park

c. Kanha National Park d. **Corbett National Park**

23. _____ are the biotic factors of an ecosystem.

a. Water, light and temperature

b. Producers, consumers and decomposers

c. Producers and consumers only

d. Consumers and decomposers only

24. Which is the prime source of energy in an ecosystem?

a. water b. Air

c. Sunlight d. Organic substances

26.Which of the following food chain is correct?

a. Grass → Grasshopper → $Fish \rightarrow Frog \rightarrow Snake$

b. Grass → $\boldsymbol{Grasshopper \rightarrow Frog \rightarrow Snake \rightarrow Eagle}$

c. Phytoplankton → $Snake \rightarrow Tiger$

d. Grass → $Fish \rightarrow Frog \rightarrow Snake$

26. The concept of 'Green Chemistry' was introduced in the year_____

a. 1991 b. 1992

c. 1994 d. **1995**

27. Plastics made from plants like corn, potatoes or other agricultural products are called _____

a. Bio-plastics b. Bio fuel

c. Bio-fertilizers d. Bio-medicines

28. The term global village was coined by _____

a. **Marshall McLuhan** b. Marshall Pasteur

c. Louis Pasteur d. Alexander Fleming

29. _____ preserves natural water storage and act as aquifers recharge zones.

a. Water shed management b**. Wetland conservation**

c. Domestic conservation d. Desalination

30. _____ are the underground reserves of fresh water.

a. **Aquifers** b. Surface water

c. Capillary water d. Tube wells

31. GEV means_____

a**. Global Electrical Village** b. Global Electronic Venue

c. Global Electric Village d. Grassland Electronic Village

32. Sulphur-di-oxide, carbon-mono-oxide are _____ pollutants.

a**. air** b. water

c. land d. none of the above

33. Burning of materials are called _____

a. Incubation b**. Incineration**

c. Deep well injection d. Land fills

34. Which one of the following is an abiotic component of the ecosystem_____

a. fungi b. plants

c. nitrogen d. bacteria

35._____ are aquatic pollutants in most of the seas.

a. Moth balls **b. Tar balls**

c. Soaps d. Coal

36. Any undesirable change in the physical, chemical or biological characteristics which affect human life is called_____

a. population b. plants

c. **pollution** d. pollutants

37. What are the types of water in India?

a. Rain water and ground water b. Fresh water and river water

c. River water and rain water **d. Fresh water and salt water**

38. desalination of ocean water is a technology that has great potential for increasing_____

a. fresh water b. rain water

c. river water d. salt water

39. Collecting rain water from the roof of building or court yards for later use is called _____

a. watershed Management b. **Rainwater Harvesting**

c. Wetland Conservation d. Seeding clouds

40. Where is Anaimalai wild life sanctuary located?

a. Nilgiris b. Tirunelveli

c. Viruthunagar district d. **Slopes of Westernghats**

41. There are about _____ biosphere reserves in India.

a. 23 b. **13**

c. 16 d. 22

42. Lion tailed macaque is found in _____

a. Mudumalai Wild life Sanctuary b. Mukkurthi National Park

c. Indira Gandhi Wild Life Sanctuary d**. Kalakkadu Wild Life Sanctuary**

43. Which of these is not a wild life sanctuary in Tamil Nadu _____

a. Anaimalai wild life sanctuary b. Viralimalai

c. **Manas wild life sanctuary** d. Point calimere wildlife sanctuary

44. Which of these animal is not found in Gulf of Mannar Marine National park?

a. tuties b. **wild peacocks**

c. coral reefs d. dolphins

45. Which is not a tiger reserve?

a. Gir National Park b. Sunder bans National Park

c. Kamha National Park d. Bandhipur National Park

46. In which bird sanctuary we can find 374 special kinds of birds?

a. Guidy National Park b. Vedanthangal Bird Sanctuary

c. Corbett National Park **d. Bharathpur Bird Sanctuary**.

47. Where is India's first national park located _____

a. Uttaranchal b. Assam

c. West Bengal d. Gujarat

48. Indian Bison is found in _____

a. Vedanthangal bird sanctuary b. Mukkurthi National Park

c**. Bandhipur National Park** d. Gir National Park

49. Choose the odd one out.

a. Producers b. Abiotic factors

c**. Moon** d. Decomposers

50. Where is India's first national park located _____

a. Uttaranchal b. Assam

c. West Bengal d. Gujarat

51. Which of these is not a effect of coal?

a**. Precipitation** b. Interference with ground water

c. Dust nuisance d. Contamination of land and water

52. Carbon dioxide is also called _____

a. Blue house gas b. **Green house gas**

c. Yellow gas d. Red house gas

53. Petroleum is also called _____

a. Olive oil b. water

c. **Crude oil** d. Coconut oil

54. Which of these materials is not made from petroleum_____

a. Polyester b. Nylon

c**. cotton** d. acrylic

55. Which of these has the green chemistry not developed?

a. in organic chemistry b. **solar radiation**

c. polymer d. physical states of matter

56. Many marine organisms living in oceans and seas have killed due to_____

a. **oil spills** b. tar balls

c. fossil d. food spills

57.Hydrogen is used in the production of ____

a. milk b. pesticides

c**. fertilizers** d. insecticides

58. What is the reason behind the growth of green chemistry_____

a. **World Wide Web** b. World Global Web

c. PVC d. polymer

II. Match the following

1.

1. Vallanadu Blackbuck Sanctuary a. Slopes of western ghats

2. Point Calimere wild life Sanctuary b. Tuticorin district

3. Anaimalai wild life Sanctuary c. Tirunelveli district

4. Kalakkadu wild life Sanctuary d. Nagapattinam district

Ans: 1-b,2-d,3-a,4-c

2.

1. Manas wild life Sanctuary a. Madhya Pradesh

2. Gir National Park b. Uttaranchal

3. Kanha National Park c. Gujarat

4. Corbett National Park d. Assam

Ans: 1-d,2-c,3-a,4-b

3.

1. Abiotic factors a. Bacteria and Fungi

2. Producers b. Sunlight

3. Consumers c. Green plants

4. Decomposers d. Lion

Ans: 1-b,2-c,3-d,4-a

4.

1. Landfills a. Hazardous waste

2. Deep well injection b. Burning of toxic drugs

3. Incineration c. Paper and Glass

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4. Recycling and Reuse d. Radioactive waste

Ans: 1-d,2-a,3-b,4-c

5.

1. Seeding clouds a. Aquifer recharge zones

2. Desalination b. Small dams

3. Wetland conservation c. Potassium iodide

4. Watershed management d. Reverse Osmosis

Ans: 1-c,2-d,3-a,4-b

6.

1. Indira Gandhi Wild Life a. Nagapattinam

2. Mudumalai Wild Life b. Western Ghats

3. Mundanthurai Wild life c. The Nilgiris

4. Point Calimere d. Tirunelveli District

Ans: 1-b,2-c,3-d,4-a

7.

1. Primary consumers a. Omnivores

2. Secondary consumers b. Herbivores

3. Tertiary consumers c. Carnivores

Ans: 1-b,2-c,3-a

III. Fill in the blanks

1. Which of the following contain only non-biodegradable items.

Ans: Aluminium cans and plastics

2. Wild life includes_____

Ans: fauna and flora

3. There are _____ tiger reserves in India.

Ans: 27

4. Wild peacocks are found in _____ sanctuary.

Ans: Viralimalai

5. Chlamydomonas, Volvox and Spirogyra are _____

Ans: Phytoplanktons

6. In an ecosystem, the energy flows in _____ direction.

Ans: one

8. Waste water management

I. Choose the correct answer.

1. An example for water-borne disease is_____

a. scabies b. **dracunculiasis**

c. trachoma d. typhoid

2. The sedimented and floating materials are removed by this treatment process.

a. **primary treatment** b. secondary treatment

c. tertiary treatment d. peripheral treatment

3. Which is a non-renewable resource?

a. coal b. petroleum

c. natural gas **d. all the above**

4. _____ is the chief component of natural gas.

a. **Ethane** b. Methane

c. Propane d. Butane

5. Which of these disease is not spread due to the ingestion of water contaminated by human or animal faces or Urine etc.

a. Typhoid b. amoebic

c. **heart attack** d. cholera

6. What can be used to treat sewage, fresh water, walls of buildings etc.

a. Nitro euro b. **Nitrosomonas europaea**

c. Pseudomonas d. Azatobacter

7. Which is not a water based disease?

a. drawnculiasis b. helminthes

c. **yellow fever** d. schistosomiasis

8. Which of these is a water related disease?

a**. Trypanosomiasis** b. Scabies

c. Trachorna d. Typhoid

9. How many people suffer from Malaris?

a. 330 million b. 40 million

c. **300 million** d. 370 million

10. Waste water can be also used as_____

a. Storm water b. insecticide

c. pesticide d. **fertilizer**

11. _____ is a term that is mainly concerned with saving energy.

a. Light energy b. Conservation of body

c**. Energy management** d. Wind energy

12. An inspection, survey and analysis on energy flows for energy conservation is called_____

a. Audit energy b. Light energy

c. Heat energy d. **Energy Audit**

13. Renewable energy(resources) need to be conserved because_____

a. they are slowly disappearing from earth

b. if we over use them nature will stop replacing them

c**. we should not use them faster than they are replenished by nature**

d. the earth will destroy if we over use

14. _____ is non-toxic safe to handle, distribute and use as a fuel.

a. oxygen b**. hydrogen**

c. carbondioxide d. nitrogen

15. What is derived from uneven healing of the earth's surface from the sun and the warm core?

a. Solar power b. Tidal power

c. **Wind power** d. Ocean power

16. _____ are energy rich, combustible form of carbon or components of carbon.

a. Fossil fuel b. Petroleum

c. Coal d. Natural gas

17. _____ is a major source of electricity generation through the use of gas turbines and steam turbines.

a. Fossil fuel b. Petroleum

c. **Natural gas** d. Coal

18. Compact fluorescent bulbs cam save up to _____

a. 4000 megawatts b. 5000 megawatts

c. **6000 megawatts** d. 7000 megawatts

19. Which is not a bio-fuel?

a. Bio-gas b. Vegetable oil

c. **Olive oil** d. Green diesel

20. Bio alcohol is widely used in _____

a. USA and Canada b. Canada and Russia

c. UK and USA **d. USA and Brazil**

21. Which is the physical substance essential to all living organisms?

a. Air b**. Water**

c. Heat d. Soil

22. Which brings the availability of primary source of water on earth?

a. Lakes b. River

c. Ocean d. **Rainfall**

23. _____ is the largest among the water sources.

a**. Ocean water** b. Lakes

c. Rivers d. Wells

24. In which areas of the earth's crust, fresh water flows freely?

a**. Artesian well** b. Lakes

c. Rivers d. Ocean

25. _____ is an example of water-washed diseases.

a. Typhoid b. **Trachoma**

c. Jaundice d. Malaria

26. This disease is caused by insect vectors which breed in water_____

a**. yellow fever** b. scabies

c. schisto somiasis d. amoebiasis

27. CFL means_____

a**. Compact Fluorescent Light Bulbs** b. Compressed Fluorescent bulbs

c. Connected Fluorescent Lights d. Controlled Fluorescent Lights

28. _____ is the energy desired directly from the sun.

a. **Solar energy** b. Wind power energy

c. Significant energy d. Hydrogen

29. _____ **is found to be the good choice among the alternate fuel.**

a. Hydrogen b. Oxygen

c. Petrol d. Diesel

30. _____ is called the 'country of winds'.

a. Brazil b. **Denmark**

c. Japan d. China

31. A black mineral of plant origin which is a fossil fuel_____

a. diesel b**. coal**

c. petrol d, methanol

32. _____ is a dark, viscous, foul smelling liquid.

a. diesel b. coal

c. turpentine d. **petroleum**

33. This alcohol is made by fermenting the guar component of plant materials_____

a. **Bio ethanol** b. methanol

c. carboxylic acid d. propanol

II. Match the following

1.

1. Water born diseases a. yellow fever, malaria

2. Water washed diseases b. amoebic and bacillary

3. Water based diseases c. scabies, trachoma

4. Water related diseases d. drancunculiasis, helminthes

Ans: 1-b,2-c,3-d,4-a

2.

1. Primary treatment a. filteration

2. Secondary treatment b. floating materials

3. Tertiary treatment c. done by micro-organism

4. Bio remediation d. biological matters removed

Ans: 1-b,2-d,3-a,4-c

3.

1. Copper choke a. solar heater

2. Tungsten bulbs b. electronic choke

3. Electric heater c. dried clothes for ironing

4. Wet clothes for ironing d. fluorescent bulbs

Ans: 1-b,2-d,3-a,4-c

4.

1. Solar energy a, Wind energy

2. Hydrogen b. Energy from the sun

3. Wind mill c. Alternate fuel

Ans: 1-b,2-c,3-a

5.

1. Bio ethanol	a. bacterial action on organic material
2. Bio diesel	b. fermenting the sugar component of plant material
3. Biogas	c. made from vegetable oil and animal fats

Ans: 1-b,2-c,3-a

III. Fill in the blanks.

1. Most grid peaking power plants and some off-grid engine-generators use_____ gas.

Ans: Natural

2. _____ is used as feed stocks for ethanol production.

Ans: Cellulosic Biomass

3. Drinking water contains high amounts of _____ can cause serious diseases.

Ans: chemicals

4. _____ is a potent green house gas.

Ans: Methane

5. _____ is used for the production of _____ for use in fertilizer production.

Ans: Natural gas, Ammonia

6. Replace _____ regulators with _____ regulators for ceiling fans.

Ans: Conventional, electronic

7. _____ is called the 'country of winds'.

Ans: Denmark

9. Solutions

I. Choose the correct answer:

1. Choose the correct statement with regard to a solution.

(i) A solution contains a solute and a solvent which is heterogeneous

(ii) A solution may contain two or more substances which is homogeneous

(iii) A true solution is one in which two phases are present

(iv) A homogeneous mixture of dispersed phase and dispersion medium is known as a true solution

2. Which of the following is a true solution?

(i) Milk (ii) Salt in carbon di sulphide

(iii) Blood **(iv) Sugar solution**

3. Choose a wrong statement?

(i) The particles of a true solution are not visible even under a powerful ultra microscope

(ii) The particles of a colloidal solution are visible under ultra microscope

(iii) The particles of a true solution show Tyndall effect

(iv) the particles of a colloidal solution show Tyndall effect

4. A given solute has a maximum solubility of 36.5 g in 100g of water. Solution A contains 10g of the solute in 100g of water. Solute B contains 35g in 100g of water. Choose the correct statement.

(i) Both are unsaturated solutions

(ii) Both are saturated solutions

(iii) Solution A is saturated while solution B is unsaturated

(iv) Solution A is unsaturated while solution B is saturated

5. The solubility of sodium chloride in water in 36g at 25^0C. This means that .....

(i) 100 g of water can dissolve and 36g of sodium chloride to form an saturated solution at 25^oC

(ii) 100 g of water can dissolve only 36g of sodium chloride whatever be the temperature

(iii) only less than 36g sodium chloride can be dissolved in 100g of water at a given temperature

(iv) A solution containing 36g of sodium chloride in 100g of water is a super saturated solution

6. Which of the following is a saturated solution?

1. Nitrogen

2. Soda water

3. Given the solubility of sodium chloride in water in 36g at 25^{o}C , solution containing 36g of sodium chloride in 100g of water.

(i) 1,2 and 3 (ii) 1 and 2

(iii) 1 and (iv) 2 and 3

7. The solubility of copper sulphate in water is 20.7g at 20^{o}C.

(a) Solution A contains 18g of copper sulphate in 100g of water.

(b) Solution B contains 20.7g of copper sulphate in 100g of water.

(c) Solution C contains 10.35g of copper sulphate in 50g of water.

Which of the following is/ are saturated solutions?

(i)Solution (a) only **(ii)Solution (b) only (c)**

(iii)Solution (a) only (c) (iv)Solution (c) only

8. The solubility of sodium nitrate at 25^{o}C is 92g. To a saturated solution of sodium nitrate , 5g of sodium nitrate is added. Which of the following will happen of the temperature is raised to 40^{o}C?

(i) The solution becomes an unsaturated solution

(ii) The additional sodium nitrate added remains as such

(iii) The solubility of sodium nitrate decreases an increasing temperature

(iv) There is no change in the solubility of sodium nitrate at 40^{o}C

9. Carbon dioxide gas is filled in soft drinks at high pressures. As a result, ...

(i) the solubility of carbon dioxide decrease

(ii) the solubility of carbon dioxide increase

(iii) the increased pressure does not have any effect on the solubility of carbon dioxide gas

(iv) the soft drink because sweety to taste

10. Hydrogen chloride (HCl) and water (H_2O) are polar compounds. Carbon tetrachloride (CCl_4) is a non polar compound . Hydrogen chloride .....

(i) is soluble both in water and carbon tetra chloride

(ii) is insoluble both in water and carbon tetrachloride

(iii) is soluble in water only

(iv) is soluble in carbon tetrachloride only

11. The solubility of a solute A in a given solvent increases with the increase in Temperature. This means that .....

(i) When the solute is added to the solvent, the heat is absorbed during dissolution

(ii) When the solute is added to the solvent, the heat is liberated during dissolution

(iii) No heat is liberated or absorbed during dissolution

(iv) The solute may be a exothermic compound

12. Choose the incorrect statement from the following:

(i) Colloidal solution consists of two phases in which the dispersed phase is dispersed in a dispersion medium

(ii) Tyndall effect is shown by a solution in which the size of the particle is greater than that present in a true solution and less than that present in a suspension

(iii) Brownian motion is observed in a colloidal solution

(iv) The colloidal particles do not diffuse in a solution

13. The mass of a gas dissolved in a fixed volume of a liquid is directly proportional to the pressure of the gas. This statement is Known as .....

(i) Boyles law (ii) Raoult's law

(iii) Henry's law (iv) gay Lussac law

14. 10g of sodium chloride is dissolved in 50g of water. The concentration of the solution in terms of weight percent is .....

(i) 16.6 % (ii) 50%

(iii) 1.66% (iv) 25%

15. Which of the following is a true solution?

(i) a solution of sugar and water

(ii) a solution of ethanol and sugar

(iii) a mixture of mud water

(iv) milk

16. Colloidal solutions are made up of two phases viz dispersed phase and dispersion medium. In milk, the dispersed phase and dispersion medium are .....

(i) solids **(ii) liquids**

(iii) gases (iv) solid and liquid repellent

17. A heterogeneous mixture in which the dispersion does not occur at all is known as .....

(i) true solution **(ii) suspension**

(iii) colloid (iv) aqueous solution

18. The solubility of copper sulphate in water is 20.7g at 20^{o}C. A solution of copper sulphate containing 10g of copper sulphate in 100g of water is known as .....

(i) saturated **(ii) unsaturated**

(iii) super saturated (iv) semi saturated

19. the solubility of sodium nitrate in 92g at 25^{o}C. The solubility may be increased by .....

(i) increasing temperature (ii) decreasing temperature

(iii) adding more sodium nitrate (iv) adding more water

20. A solution 'A' contains 10g of sugar in water. Another solution 'B' contains 20g of sugar in water. Solution B is more ..... than A.

(i) diluted **(ii) concentrated**

(iii) saturated (iv) unsaturated

21. In alloys, the solute is a ..... .

(i) solid (ii) liquid

(iii) gas (iv) water

22. The solvent in smoke is ..... .

(i) solid **(ii) gas**

(iii) liquid (iv) nitrogen

23. An example of a solution in which liquid is the solute and solid as solvent in ..... .

(i) smoke (ii) milk

(iii) cloud **(iv) cheese**

24. Brownian movement is observed in ..... .

(i) sugar solution **(ii) milk**

(iii) bronze (iv) He-O_2 mixture

25. When sand or clay is added to water, the resulting solution is ..... .

(i) true solution (ii) colloidal solution

(iii) suspension (iv) non aqueous solution

26. When sunlight passes through the window of the class room, the dust particles scatter the light making the path of the light visible. This phenomenon is called ..... .

(i) tyndall effect (ii) Brownian motion

(iii) electro phoresis (iv) electro plating

27. In an exothermic process, increase of temperature ..... the solubility

(i) increases **(ii) decreases**

(iii) remains constant (iv) neither decreases nor increases

28. The solution which contains alcohol as the solvent is called ..... .

(i) aqueous solution **(ii) non aqueous solution**

(iii) alloys (iv) suspension

29. The solubility of sodium nitrate in water is ..... .

(i) 92g **(ii) 184g**

(iii) 95g (iv) 36g

30. A ..... is a homogenous mixture of two or more substances.

(i) true solution (ii) colloidal solution

(iii) suspension (iv) mixture of milk powder and water

31. Solute+ .....→ solution.

(i) suspension (ii) colloid

(iii) solvent (iv) salt

32. ..... + Dispersion medium → colloidal solution.

(i) sugar salt **(ii) dispersed phase**

(iii) suspension (iv) true solution

33. In cloud, the solute and solvent are ..... .

(i) gas and liquid **(ii) liquid and gas**

(iii) solid and gas (iv) gas and solid

34. ..... is opaque in nature.

(i) Water (ii) True solution

(iii) Colloids **(iv) Suspension**

35. The size of particles in true solution is .....

(i) 10 Å to 1000 Å **(ii) 1 Å to 10 Å**

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(iii) more than 1000 Å (iv) less than 1000 Å

10. Atoms and Molecules

I. Choose the correct answer:

1. 100 ml of oxygen gas and 100 ml of nitrogen gas at normal temperature and pressure contain .....

(i) equal number of atoms

(ii)) equal number of molecules

(iii) oxygen gas has more number of atoms than nitrogen gas

(iv) nitrogen gas has more number of atoms than oxygen gas

2. Identify the monatomic and diatomic species from the following pairs .....

(i) helium and neon (ii) hydrogen and chlorine

(iii) chlorine and ozone **(iv) helium and oxygen**

3. The atomic mass of ozone is 16 and its molecular mass is 48. It atomicity is .....

(i) $\frac{16}{48}$ **(ii)** $\mathbf{\frac{48}{16}}$

(iii) 48 x 16 (iv) 48+16

4. The molecular mass of chlorine is 71 and its atomic mass is 35.5. The atomicity of chlorine is .....

(i) 1 **(ii) 2**

(iii) 3 (iv) cannot be predicted

5. the atomic mass of sulphur is 32. It has atomicity 8. The molecular mass of sulphur is .....

(i) 32 **(ii) 256**

(iii) 4 (iv) 42

6. The atomic and mass numbers of certain elements are given as:

1. Cl $^{35}_{17}$; Ar $^{40}_{18}$ 2. Cl $^{35}_{17}$; Cl $^{35}_{17}$ 3. O $^{8}_{16}$; O $^{8}_{17}$ 4. Ar $^{40}_{18}$; Ca $^{40}_{20}$

these pairs , the pair which is known as isotopes are .....

(i)1 and 2 **(ii) 2**

(iii) 2 and 4 (iv) 3 and 4

7. Isobars are .....

(i) atoms of the same element with same atomic number but different mass number

(ii) atoms of different elements having the same mass number but different atomic number

(iii) atoms of different elements with the same number of neutrons

(iv) atoms of different elements having the same atomic number and different mass number

8. $_{6}C^{14}$ and $_{7}N^{14}$ are examples of .....

(i) isotopes **(ii) isobars**

(iii) isotones (iv) isosters

9. Which of the following statement truly reflect the definition of atom and molecule?

(i) atoms are unstable and do not exist free whereas molecules exist free

(ii) atoms of polyatomic molecules do not exist free whereas molecules exist free

(iii) atoms of all types of molecules and molecules exist free

(iv) monoatomic elementary molecule and molecules do not exist free

10. Which of the following have independent existence?

(i) an atom of nitrogen (ii) an atom of helium

(iii) a molecule of chloride **(iv) both (ii) and (iii)**

11. Which of the following pairs constitute an elementary molecule?

(i) hydrogen and chlorine (ii) water and nitric oxide

(iii) methane and water (iv) Hydrogen and water

12. Identify the pair which consists of a homoatomic molecule and a hetero atomic molecule .....

1. nitrogen and ammonia 2. nitrogen and oxygen

3. oxygen and water 4. chlorine and nitrogen

(i) 1 and 2 **(ii) 1 and 3**

(iii) 3 and 4 (iv) 1 and 4

13. The number of atoms present in one gram of hydrogen atom is .....

(i) 1 **(ii) 6.023×10^{23}**

(iii) $2 \times 6.023 \times 10^{23}$ (iv) 3.06×10^{23}

14. Which of the following is correct with respect to a mole of substance?

(i) 1 mole = 6.023×10^{23} molecules

(ii) 1 mole = atomicity x 6.023×10^{23} atoms

(iii) 1 mole = atomicity x 1 gram atom

(iv) all the above

15. The number of molecules in 32 g of oxygen is .....

(i) 3.01×10^{23} **(ii) 6.023×10^{23}**

(iii) 3.01×10^{32} (iv) $2 \times 6.023 \times 10^{23}$

16. The mass of one molecule of nitrogen is .....

(i) 28 g (ii) 0.28 g

(iii) $\mathbf{\frac{28}{6.023 \times 1023}}$ **g** (iv) $\frac{6.023 \times 1023}{28}$ g

17. Which of the following has highest mass in grams?

(i) 1 atom of silver (ii) 1 mol of nitrogen

(iii) 1 mol of calcium (iv) 2 g of sodium

18. One mol of carbon-dioxide contains .....

(i) 6.023×10^{23} molecules of carbon-dioxide

(ii) 6.023×10^{23} atoms of oxygen

(iii) 18.1×10^{23} molecules of carbon-dioxide

(iv) 3 gm of carbon-dioxide

19. Which among the following will contain the same number of atoms of oxygen and other element in one mole of that substance .....

1. carbon monoxide 2. nitrous oxide

3. nitrogen dioxide 4. carbon-dioxide

(i) 1 and 2 (ii) 3 and 4

(iii) 1 and 3 (iv) 2 and 4

20. The volume occupied by 2 mol of nitrogen dioxide at STP is .....

(i) 22.41 **(ii) 44.821**

(iii) 2.2421 (iv) 4.4821

21. 1 cc of N_2O at STP contains .....

(i) $\frac{1.8}{224}$ x 10^{22} atoms **(ii) $\frac{6.023}{22400}$ x 10^{23} molecules**

(iii) $\frac{1.32}{224}$ x 10^{23} electrons (iv) all the above

22. One mole of the oxygen gas has the volume of .....

(i) 1 L of oxygen a STP

(ii) 32 L of oxygen a STP

(iii) 22.4 L of oxygen a STP

(iv) 6.02 x 10^{23} molecules of oxygen at any temperature and pressure

23. How many moles are represented by 36g of water?

(i) 1 **(ii) 2**

(iii) 3 (iv) 4

24. What is the mass of 4.48 x $10^{-2}m^3$ of Methane gas at STP?

(i) 16 g **(ii) 32 g**

(iii) 48 g (iv) 54 g

25. Gram molecular mass of nitrogen is .....

(i) 23 (ii) 14

(iii) 7 (iv) none

26. The number of molecules present in 17 g of ammonia is .....

(i) 6.023×10^{23} (ii) 6.023

(iii) 60.23×10^{23} (iv) 6.023×10^{22}

27. The gram-atomic mass of chlorine is .....

(i) 35.5 g (ii) 35.5 kg

(iii) 3.55 g (iv) 3.55 kg

28. 4.25 g of ammonia is equal to .....

(i) 0.25 mole (ii) 1 mole

(iii) 1.5 mole (iv) 0.5 mole

29. How many molecules are present in one gram of hydrogen?

(i) 6.023×10^{22} (ii) 6.023×10^{23}

(iii) 3.015×10^{23} (iv) 3.015×10^{-12}

30. The weight of one calcium atom (at mass=40) is .....

(i) 40 g (ii) 6.02×10^{-23}g

(iii) 6.64×10^{-23}g (iv) 6.02×10^{23}g

31. Which of the following will contain the mass number of atoms as 20g of calcium?

(i) 24 g of Mg (ii) 12 g of C

(iii) 24 g of C **(iv) 12 g of Mg**

32. Avogadro number of helium atoms weigh .....

(i) 1.00 g **(ii) 4.00 g**

(iii) 8.00 g (iv) $4 \times 6.023 \times 10^{23}$g

33. The mass of 2.24 dm^3 of a gas under standard condition is 2.8 g. Its molar mass is .....

(i) 28 (ii) 14

(iii) 42 (iv) 56

34. The vapour density of a gas is 11.2. The volume occupied by 11.2 dm^3 of the gas at STP is .....

(i) 1 dm^3 **(ii) 11.2 dm^3**

(iii) 22.4 dm^3 (iv) 10 dm^3

35. The molecular weight of NO_2 is 46. Its density in gdm^3 will be .....

(i) $\frac{46}{22.4}$ (ii) $\frac{46}{22400}$

(iii) 46 x 22.4 (iv) 46 x $\frac{22400}{760}$

36. which of the following contain the same number of moles

(i) 49 g of H_2SO_4 (ii) 100 g of $CaBr_2$

(iii) 75 g of NaI **(iv) all**

37. The volume of STP of hydrogen produced by 12g Mg (at. Wt. 24) .....

(i) 2.24 x $10^{-2}m^3$ **(ii) 1.12 x $10^{-2}m^3$**

(iii) 44.8 dm^3 (iv) 6.1 dm^3

38. The number of molecules present in 14 gms of nitrogen at STP is .....

(i) 6.023 x 10^{23} (ii) 6.023 x 10^{-23}

(iii) 3.0115 x 10^{23} (iv) 3.0115 x 10^{-23}

39. Atoms of the same elements having similar chemical properties and different physical properties are known as .....

(i) isotopes (ii) isobars

(iii) isotone (iv) isochors

40. The species that take part in chemical reactions are .....

(i) atoms (ii) molecules

(iii) electrons (iv) protons

41. The ratio of atoms in a molecule of H_2SO_4 is .....

(i) 2:1:4 (ii) 2:2:4

(iii) 1:1:1 (iv) 2:2:3

42. ..... is the name given to a process where atoms of one element is changed to atoms of another element.

(i) disintegration **(ii) transmutation**

(iii) atomisation (iv) combination

43. Tri atomic molecules contain ..... number of atoms.

(i) three (ii) four

(iii) two (iv) six

44. The molecular mass of an atom is 32 and its atomic mass 8. Its atomicity is .....

(i) 4 (ii) 8

(iii) 2 (iv) 3

45. The atomicity of a molecule is 3. Its atomic mass is 16. Its molecular mass is .....

(i) 48 (ii) 16

(iii) 32 (iv) 18

11. Chemical Reaction

I. Choose the correct answer:

1. A lustrous white silver plate , is exposed to the atmosphere for several days. Which of the following statement is incorrect?

(i) The silver plate gets tarnished

(ii) A black coating is formed due to the formation of silver sulphide

(iii) The silver plate is unaffected

(iv) The shape of the silver plate is altered

2. To an aqueous solution of lead nitrate , in a beaker, an aqueous solution of potassium iodide is added. Choose the correct statements .....

1. a yellow precipitate of lead iodide is formed
2. this is an example of double decomposition reaction
3. the resultant mixture is a colourless solution
4. this is an displacement reaction

(i) 1 and 2 (ii) 3 and 4

(iii) 1 and 3 (iv) 2 and 3

3. To a pinch of powdered calcium carbonate in a test tube, a few drops of dilute hydrochloric acid is added which of the following statement is correct .....

1. chlorine gas is liberated
2. calcium carbonate and hydrochloric acid are the reactants
3. calcium chloride carbondioxide and H_2O are the products
4. no change is observed

(i) 1 and 2 (ii) 3 and 4

(iii) 1 and 3 **(iv) 2 and 3**

4. Which of the following is a decomposition reaction?

(i) heating ammonium-di-chromate at high temperature,

(ii) mixing copper sulphate solution and barium chloride solution,

(iii) placing zinc rod into a solution of copper sulphate

(iv) adding water to quick lime

5. Choose the combination reaction .....

(i) extraction of a metal

(ii) burning of metals

(iii) addition of a more active metal to a solution of less active metal compound

(iv) electrolysis

6. Identify the double decomposition reaction .....

(i) hydrogen burns in air

(ii) electrolysis of water

(iii) digestion of food in our body

(iv) addition of dilute sulphuric acid to barium chloride solution

7. $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe_2$. This reaction is an example of .....

(i) combination reaction (ii) double displacement reaction

(iii) decomposition reaction **(iv) displacement reaction**

8. Which of the following is redox reaction?

(i) ZnO + C → Zn + CO

(ii) $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$

(iii) $FeCl_3 + 3NH_4OH \rightarrow Fe(OH)_3 + 3NH_4Cl$

(iv) $2Ag\,Br \xrightarrow{light} 2Ag + Br_2$

9. Choose the exothermic reaction from the following .....

(i) a detergent is dissolved in water

(ii) glucose is kept on our tongue

(iii) ammonium chloride is dissolved in water

(iv) all the above

10. In a redox reaction .....

(i) an oxidising agent gets reduced

(ii) a reducing agent gets oxidised

(iii) both oxidation and reduction occur together

(iv) all the above

11. For the reaction taking place in solution, A→B, the rate of reaction is expressed as .....

(i) $\frac{d[A]}{dt}$ **(ii)** $\frac{-d[A]}{dt}$

(iii) $\frac{-d[B]}{dt}$ (iv) $\frac{-d[A]}{d[B]}$

12. During a chemical reaction which takes place in solution, ...

(i) the concentration of the reactant increases

(ii) the concentration of the product decreases

(iii) the concentration of the reactant does not change

(iv) the concentration of the reactant decreases

13. Choose the correct statement .....

(i) magnesium ribbon reacts faster in hydrochloric acid

(ii) magnesium ribbon reacts faster in acetic acid

(iii) magnesium ribbon reacts slower in hydrochloric and faster in acetic acid

(iv) hydrogen gas is involved at the same rate when magnesium ribbon is allowed to react separately with hydrochloric acid and acetic acid

14. In which of the following , the rate of reaction is faster?

(i) dissolution of calcium carbonate in hydrochloric acid at room temperature

(ii) dissolution of calcium carbonate in hydrochloric acid at 40^{o}C

(iii) dissolution of calcium carbonate in dilute hydrochloric acid at 40^{o}C

(iv) all the above

15. Choose a pair of monobasic acids .....

(i) HCl and HNO_3 (ii) $H_2SO_4 + H_2CO_3$

(iii) H_3PO_4 and H_2SO_4 (iv) $CH_3COOH+H_2SO_4$

16. Consider acetic acid and hydrochloric acid. Choose the correct statement.

(i) both acetic and hydrochloric acids are strong acids

(ii) both acetic and hydrochloric acids are weak acids

(iii) acetic acid is a stronger acid than hydrochloric acid

(iv) hydrochloric acid is a stronger acid than acetic acid

17. The basicity of sulphuric acid and phosphoric acids are .....

(i) 1 and 2 **(ii) 2 and 3**

(iii) 1 and 3 (iv) 2 and 4

18. You have two solutions of hydrochloric acid solution A contains 36.5 g of hydrochloric acid is one litre of the solution. Solution B contains 3.65g hydrochloric acid is one litre of the solution. Among solution A and B .....

(i) A is a stronger acid than B (ii) B is a stronger acid than A

(iii) Both are equally strong (iv) A is a weaker acid than B

19. Select a mineral acid among the following .....

(i) acetic acid (ii) citric acid

(iii) hydrochloric acid (iv) lactic acid

20. Which of the following react with hydrochloric acid but not with sodium hydroxide?

(i) calcium oxide, ammonium hydroxide

(ii) sodium oxide, carbon-di-oxide

(iii) sodium oxide, ammonium hydroxide

(iv) Sodium oxide, magnesium hydroxide

21. Which of the following reactions is not feasible/

(i) Passing carbon-di-oxide gas through an aqueous solution of sodium carbonate

(ii) Adding a piece of aluminium metal in an aqueous solution of sodium hydroxide

(iii) Adding sulphuric acid to powdered copper carbonate

(iv) Adding sodium hydroxide to a calcium oxide

22. Which of the following solution has pH=3?

(i) An aqueous solution of HCl pf 10^{-3} M

(ii) An aqueous solution of NaOH of 10^{-3} M

(iii) An aqueous solution of NaOH whose hydroxyl ion concentration is 10^{-9} M

(iv) Pure water

23. Lemon juice has pH 2. Tomato juice has pH 4. Toothpaste has a pH 9. Choose the correct statement

(i) Toothpaste is acidic , while both lemon juice and tomato juice are alkaline

(ii) Toothpaste and lemon juice are alkaline while tomato juice is acidic

(iii) Toothpaste is alkaline while both tomato and lemon juice are acidic

(iv) all are acidic

24. A solution turns red litmus blue. Its pH would be .....

(i) 2 (ii) 4

(iii) 7 **(iv) 9**

25. Which of the following is a characteristic of an acid salt?

(i) Acid salts dissolve in water giving H^+ ions

(ii) Acid salts are formed by adding calculated amount of a base to a poly basic acis

(iii) Acid salts are formed by the partial replacement of hydrogen ions ions ina polybasic acid

(iv) All the above

26. The formation of calcium hydroxide from calcium oxide and water is an example of ..... reaction

(i) combination (ii) double decomposition

(iii) decomposition (iv) displacement

27. the reaction between an aqueous solution of lead nitrate and dilute hydrochloride in ..... reaction.

(i) double decomposition (ii) combination

(iii) precipitation (iv) oxidation

28. The reaction between aqueous solution of sodium sulphate and barium chloride is ..... reaction.

(i) precipitation (ii) redox

(iii) simple displacement (iv) decomposition

29. The decomposition of potassium chlorate is faster in the presence of manganese dioxide. Manganese dioxide acts as a .....

(i) reactant **(ii) catalyst**

(iii) oxidising agent (iv) reducing agent

30. ..... react faster in dilute hydrochloric acid.

(i) powder calcium carbonate (ii) Marble

(iii) Iron rod (iv) Crystalline sodium chloride

31. A red litmus paper is dipped in moist chlorine . Its colour .....

(i) changes to blue **(ii) remain red**

(iii) changes to green (iv) changes to orange

32. A neutral solution will have pH .....

(i) 7 (ii) less than 7

(iii) between 6-7 (iv) between 7-8

33. Among distilled water and 1 M NaOH, the one having the maximum pH is .....

(i) distilled water **(ii) 1 M NaOH**

(iii) 0.1 M HCl (iv) 0.1 m NaOH

34. An example of triacidic base is .....

(i) $Fe(OH)_2$ (ii) $Fe(OH)_3$

(iii) NaOH (iv) $Ca(OH)_2$

35. The gases evolved on heating lead nitrate are .....

(i) O_2 and NO **(ii) O_2 and NO_2**

(iii) O_2 and N_2 (iv) N_2 and NO_2

36. The gas obtained when crystals of ammonium dichromate is heated in .....

(i) chromium trioxide (ii) metallic chromium

(iii) ammonium chromate (iv) chromic acid

37. An example of a reaction which is simple displacement reaction is .....

(i) $Pb + CuCl_2 \rightarrow PbCl_2 + Cu$ (ii) $Na_2SO_4 + BaCl_2 \rightarrow 2NaCl + BaSO_4$

(iii) $CuSO_4 + H_2S \rightarrow CuS + H_2SO_4$ (iv) $2Mg + O_2 \rightarrow 2MgO$

38. ..... will react with dilute hydrochloric acid faster than marble chips.

(i) Powdered calcium carbonate (ii) sodium metal

(iii) iron rod (iv) magnesium ribbon

39. Magnesium ribbon reacts slower in ..... than in hydrochloric acid.

(i) sulphuric acid (ii) nitric acid

(iii) acetic acid (iv) water

40. An example of an organic acid is .....

(i) formic acid (ii) hydrochloric acid

(iii) sulphuric acid (iv) nitric acid

41. The number of hydrogen ions per molecule in a tribasic acid is .....

(i) 1 (ii) 2

(iii) 3 (iv) 4

42. The constituent present in baking powder is .....

(i) sodium benzoate (ii) acetic acid

(iii) sodium lactate **(iv) tartaric acid**

43. Which of the following is not an alkali?

(i) NaOH (ii) KOH

(iii) Al $(OH)_3$ (iv) C_5OH

44. The pOH of a solution containing $[OH^-]$ concentration 10^{-3} M is .....

(i) 3 (ii) 2

(iii) 11 (iv) 14

45. A solution containing sodium hydroxide has a concentration 1.0×10^{-9} M. The pH of the solution is .....

(i) 9 **(ii) 5**

(iii) 4 (iv) 8

46. The acid which has an approximate pH range 2.2 to 2.4 is .....

(i) tomato juice (ii) coffee

(iii) lemon juice (iv) lemon saliva

47. The ideal pH value of the blood is .....

(i) 0.5 (ii) 5.5

(iii) 4.5 **(iv) 7.4**

48. Cu(OH)Cl is an example of .....

(i) acidic salt **(ii) basic salt**

(iii) neutral salt (iv) double salt

49. An aqueous solution which turns blue litmus red and methyl orange pink is .....

(i) NaOH (ii) KOH

(iii) Ca $(OH)_2$ **(iv) HCl**

50. An aqueous of magnesium oxide is .....

(i) acidic **(ii) alkaline**

(iii) neutral (iv) negative

51. Reduction involves addition of .....

(i) protons **(ii) electrons**

(iii) atoms (iv) molecular

52. Combustion reaction are ..... reactions.

(i) endothermic **(ii) exothermic**

(iii) combination (iv) reduction

53. $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$. In this chemical reaction, MnO_2 acts as .....

(i) reactant (ii) product

(iii) catalyst (iv) promoter

54. On heating the green colour copper carbonate changes into ..... colour resulting the formation of copper oxide.

(i) white **(ii) black**

(iii) green (iv) red

55. If the value of pOH of a substance is 3, its pH is .....

(i) 3 **(ii) 11**

(iii) 14 (iv) 1

56. The acid used in the preparation of fertilizers is .....

(i) HCl (ii) H_2SO_4

(iii) HNO_3 (iv)H_3PO_4

57. An example for strong acid is .....

(i) hydrochloric acid (ii) acetic acid

(iii) malic acid (iv) citric acid

58. The acid used in the preparation of cool drinks is .....

(i) sulphuric acid **(ii) carbonic acid**

(iii) tartaric acid (iv) hydrochloric acid

59. The alkali that is used as medicine for stomach troubles is .....

(i) sodium hydroxide (ii) calcium hydroxide

(iii) magnesium hydroxide (iv) carbon hydroxide

60. ..... is used to grease stains from clothes.

(i) Potassium hydroxide (ii) Aluminium hydroxide

(iii) Ammonium hydroxide (iv) Silver hydroxide

61. In a particular chemical reaction, two electrons are gained that is known as a/an .....

(i) oxidation **(ii) reduction**

(iii) decomposition (iv) displacement

62. If heat is evolved in a particular chemical reaction, it is said to be an .....

(i) endothermic **(ii) exothermic**

(iii) oxidation (iv) decomposition

63. When glucose is kept in our tongue, a chilling effect is felt, this is an example for .....

(i) endothermic (ii) exothermic

(iii) combustion (iv) oxidation

64. Acid present in gape is .....

(i) malic acid **(ii) tartaric acid**

(iii) oxalic acid (iv) citraic acid

65. An example for tribasic acid is .....

(i) CH_3COOH **(ii) H_3PO_4**

(iii) H_2So_4 (iv) H_2CO_3

66. For human blood the pH range is ..... to .....

(i) 4.5- 6 (ii) 6.5-7.5

(iii) 7.35 – 7.45 (iv) 4.4 – 5.5

67. Metal + Acid → Salt + ...

(i) Oxygen (ii) Water

(iii) Carbon **(iv) Hydrogen**

12. Periodic Classification of Elements

I.Choose the correct answer

1. A plot of square rod of frequency of X-rays emitted by a metal against atomic number gives .....

(i) a straight line (ii) a curve

(iii) a straight line parallel to X axis (iv) a straight line parallel to Y axis

2. The basis for periodic classification of the elements as suggested by Mosley is .....

(i) atomic weight (ii) valency

(iii) atomic number (iv) physical and chemical properties

3. In the long form of periodic table.

1. Elements have been arranged in increasing order of atomic weight.
2. Elements have been arranged in increasing order of atomic number.
3. There are seven periods and 18 groups
4. There are eight periods and 19 groups

(i) 1,2,3 **(ii) 2 and 3**

(iii) 1, 3 (iv) 3 and 4

4. The third period consists of elements presents having atomic number.

(i) 1,2 (ii) 8

(iii) 11 to 18 (iv) 19 to 36

5. The maximum number of elements present in third period is .....

(i) 2 **(ii) 8**

(iii) 18 (iv) 36

6. The fourth period of the long form of periodic table.

(i) contain eight elements

(ii) contains 8 normal elements, 10 transition elements and 14 inner transition elements

(iii) contains elements from rubidium to xenon

(iv) contains elements from potassium to krypton

7. Elements having atomic numbers 55 to 86 are present .....

(i) fourth period (ii) fifth period

(iii) sixth period (iv) seventh period

8. In the long form of periodic table alkali and alkaline earth metals are present in respectively .....

(i) first group and second group (ii) second group and first group

(iii) in first group only (iv) in second group only

9. Group 3 to 12 in the long form of periodic table are called .....

(i) respective elements **(ii) transition elements**

(iii) inner transition elements (iv) inert gases

10. Choose the incorrect statement.

(i) The chemical properties of element change along a period

(ii) The elements present in a group have identical chemical properties

(iii) The size of the atom increases along a period

(iv) The size of the atom increases along a group

11. ..... are called a coinage metals

(i) Copper, Silver and Gold (ii) Copper, Brass and Gold

(iii) Copper, Brass and Silver (iv) Copper Silver and Aluminium

12. Which metal is a constitute of haemoglobin?

(i) zn **(ii) Fe**

(iii) Ca (iv) Co

13. Given from pairs, identify the one which is an ore and the other a mineral.

(i) Bauxite, Cryolite (ii) Galena, Zinc blend

(iii) Haematic, Clay (iv) Bauxite and Zinc blende

14. The formula of cryolite is .....

(i) $Al_2O_32H_2O$ **(ii) Na_3AlF_6**

(iii) Al_2O_3 (iv) $NaAlO_2$

15. A metal A is not affected by dry air on heating to 800^o it burns brightly. It is a powerful reducing agent. It is used in alumina thermic process. The metal A is .....

(i) Fe (ii) Zn

(iii) Al (iv) Cu

16. Matte is .....

(i) a mixture of cuprous sulphide and ferrous sulphide

(ii) a mixture of cupric sulphide and ferrous sulphide

(iii) a mixture of cuprous sulphide and ferrous sulphate

(iv) a mixture of cupric sulphide and ferrous sulphate

17. Copper metal is heated with concentrated nitric acid. The gas evolved is .....

(i) nitrous oxide (ii) nitric oxide

(iii) nitrogen dioxide (iv) sulphurdioxide

18. Choose the correct statement from the following:

(i) Haematite ore is concentrated by froth flotation process

(ii) Haematite ore is concentrated by gravity separation

(iii) Copper pyrites is concentrated by gravity separation

(iv) Haematite ore is concentrated by leaching

19. Which of the following metals is purified by electrolytic refining?

(i) Fe **(ii) Cu**

(iii) Zn (iv) Hg

20. The chemical reaction that occurs in the blast furnace to give spongy iron in the extraction of iron from haematite is .....

(i) $FeO + SiO_2 \rightarrow FeSiO_3$ (ii) $CO_2 + C \rightarrow 2CO$

(iii) $\mathbf{Fe_2O_3 + 3CO \rightarrow 3Fe + 3Co_2}$ (iv)$CaO + SiO_2 \rightarrow CaSiO_3$

21. Number of periods in modern periodic table is .....

(i) 7 (ii) 17

(iii) 18 (iv) 8

22. An amalgam is an alloy of metal with .....

(i) carbon (ii) hydrogen

(iii) mercury (iv) gold

23. Atomic number of iron is 26. Its electronic configuration is .....

(i) 2, 8, 8, 2 (ii) 2, 8, 8, 4

(iii) 2, 8, 14, 2 (iv) 2, 8, 14, 4

24. The percentage of purity of gold calculated for making ornaments is .....

(i) $\frac{24}{22} \times 100$ **(ii))** $\mathbf{\frac{22}{24} \times 100}$

(iii)) $\frac{20}{24} \times 100$ (iv)) $\frac{18}{22} \times 100$

25. Bauxite is used to extract aluminium. It can be turned as .....

(i) ore (ii) mineral

(iii) flux (iv) slag

26. To design the body of the aircraft, ... alloys are used.

(i) iron (ii) gold

(iii) silver **(iv) aluminium**

27. A process employed for the concentration of sulphide ore is .....

(i) gravity separation **(ii) forth floatation**

(iii) magnetic separation (iv) chemical method

28. modern periodic law states that the physical and chemical properties of elements are the periodic functions of their .....

(i) atomic weight (ii) mass number

(iii) atomic number (iv) neutron number

29. Second group of elements are called .....

(i) alkali metals **(ii) alkaline earth metals**

(iii) transition elements (iv) minor transition elements

30. The ore FeS_2 of iron is named as .....

(i) red haematite **(ii) iron pyrites**

(iii) magnetite (iv) cuprite

31. Air and water are necessary for ..... of iron.

(i) oxidation (ii) reduction

(iii) decomposition **(iv) rusting**

32. For making electromagnets, ... is used.

(i) pig iron **(ii) wrought iron**

(iii) steel (iv) amalgam

33. The magnetic oxide of iron is .....

(i) FeO (ii) Fe_2O_3

(iii)Fe_3O_4 (iv) Fe_4O_3

34. In the correction of iron, carbonic acid acts as .....

(i) electrolyte (ii) cathode

(iii) anode (iv) an angent

35. ..... alloy of aluminium is used to make scientific instruments.

(i) Magnalium (ii) Duralumin

(iii) Brass (iv) Bronze

36. Fe_2O_3. H_2O or hydrated ferric oxide is known as .....

(i) magnetic oxide of iron **(ii) rust**

(iii) the inert layer of iron oxide (iv) the electrolyte

37. Galena is the sulphide ore of .....

(i) aluminium (ii) iron

(iii) copper **(iv) lead**

38. ..... is the substance added to the ore to reduce the fusion temperature.

(i) flux (ii) slag

(iii) gangue (iv) mineral

39. The metal ..... plays a vital role in nuclear reactions releasing enormous energy called nuclear energy.

(i) copper (ii) chromium

(iii) uranium (iv) zirconium

40. The ore of Aluminium is .....

(i) Haematite (ii) Magnetite

(iii) Bauxite (iv) Siderite

41. Bauxite is the ore of .....

(i) Aluminium (ii) Sodium

(iii) Copper (iv) Iron

42. First period contains only two elements, one is hydrogen and the other is .....

(i) Nitrogen (ii) Oxygen

(iii) Helium (iv) Neon

43. The molecular formula for Bauxite is .....

(i) Al_2O_3 (ii) $Al_2O_3 \cdot 5H_2O$

(iii) $Al_2O_3 \cdot 2H_2O$ (iv) $Al_2O_3 \cdot 10H_2O$

13. Carbon and its Compounds

I.Choose the correct answer:

1. The electronic configuration of carbon and the number of valence electrons are respectively .....

(i) $1s^2\ 2s^2$, 4 **(ii) $1s^2\ 2s^2\ 2p^2$, 4**

(iii) $1s^2\ 2s^2\ 2p^2$, 6 (iv) $s^2\ 2s^2\ 2p^2$, 4

2. The force of attraction that exists between the carbon atoms in graphite is .....

(i) strong electrostatic forces of attraction

(ii) strong vander Waals force of attraction

(iii) weak vander Waals force of repulsion

(iv) weak vander Waals force of attraction

3. Carbon compounds are stable due to .....

(i) its electronic configuration (ii) its tendency to show isomerism

(iii) its small size (iv) its ability to combine with non metals

4. Choose the correct statement .....

(i) The tendency of carbon atom to form covalent bonds with other carbon atoms is known as catenation

(ii) Carbon can form C^{+4} and C^{-4} ions

(iii) The valency of carbon is always four

(iv) The hardness of diamond is due to the weak vander waals force that exist between carbon atoms

5. Which of the following form a set of homologous series?

(i) ethane, methane, propene (ii) ethane, methane, ethane

(iii) ethyne, propyne, but-l-yne (iv) ethyne, propyne, but-l-ene

6. Which of the following represent the functional group 'alcohols' .....

(i) –CHO (ii) CO

(iii) CHO (iv) COOH

7. The IUPAC name for CH_3COCH_3 is .....

(i) acetone (ii) dimethyl ketone

(iii) propanone (iv) propane

8. A compound has the molecular formula C_2H_6O. The functional group present in the compound is .....

(i) –OH (ii) CO

(iii) Cho (iv) COOH

9. Which of the following pairs of compounds are isomers?

(i) ethane and methane (ii) ethyne and propyne

(iii) but-l-ene and but-2-ene (iv) acetylene and ethyne

10. Four pairs of compounds are given below. Choose the pairs of compounds containing the same functional group .....

(i) Ethanol and ethanol (ii) propane and propyne

(iii) propanol and propanoic acid **(iv) Methanol and butanol**

11. Which of the following compound is an alkanone?

(i) CH_3CH_2OH **(ii) CH_3COCH_3**

(iii) CH_3CH_2CHO (iv) CH_3COOH

12. The IUPAC name for acetic acid is .....

(i) methanoic acid **(ii) ethanoic acid**

(iii) propanoic acid (iv) butanoic acid

13. The conversion of ethanol to ethane is .....

(i) inter molecular dehydration **(ii) intra molecular dehydration**

(iii) inter molecular hydration (iv) oxidation

14. $CH_3CH_2OH \rightarrow$ A. The compound A is .....

(i) CH_3CH_3 **(ii) $CH_2 = CH_2$**

(iii) CH_3CHO (iv) none

15. A compound A having the molecular formula C_2H_6O liberates hydrogen gas when heated with sodium. When heated wit acidified $K_2Cr_2O_7$, the orange colour of the $K_2Cr_2O_7$ changes to green. The compound A is .....

(i) CH_3CH_3 **(ii) CH_3CH_2OH**

(iii) CH_3OCH_3 (iv) CH_3CHO

16. $CH_3CH_2OH \rightarrow CH_3CHO + H_2$. This reaction is known as .....

(i) esterification (ii) dehydration

(iii) dehydrogenation (iv) oxidation

17. An example for decarboxylation reaction is .....

(i) heating ethanoic acid with sodium hydroxide

(ii) heating sodium ethanoate with soda lime

(iii) treating glucose with zymase

(iv) heating ethanol with sodium

18. Which of the following on heating liberate hydrogen gas?

1. ethanol, 2. Acetic acid, 3. Methane, 4. Acetone

(i) 1 only (ii) 2 only

(iii) 1 and 2 only (iv) 3 and 4

19. Choose the alkyne from the following .....

(i) methane (ii) ethane

(iii) ethane **(iv) acetylene**

20. Which of the following represent a pair of unsaturated hydrocarbon?

(i) ethane and ethyne **(ii) ethene and ethyne**

(iii) methane and ethyne (iv) acetic acid and formic acid

21. An organic compound decolourises the bromine water. It may be .....

(i) ethane **(ii) ethane**

(iii) propane (iv) butane

22. 'Rectified spirit' contains .....

(i) 95% methanol and 5% water **(ii) 95% ethanol and 5% water**

(iii) 15% ethanol and 95% water (iv) 50% ethanol and 50% water

23. On heating ethanol with conc. H_2SO_4 at 443 K gives .....

(i) ethane **(ii) ethane**

(iii) ethyne (iv) methane

24. Molasses contain nitrogenous matter. If the nitrogen content of the molasses is poor during fermentation ..... is added to fortify.

(i) ammonium chloride **(ii) ammonium sulphate**

(iii) yeast (iv) sulphyric acid

25. The saturated hydrocarbons form homologons series with the general formula CnH_{2n+2}. The formula of the second member in this series is .....

(i) C_2H_2 **(ii)C_2H_6**

(iii) C_2H_6 (iv) C_2H_8

26. Ethanol on oxidation in the presence of alkaline potassium permanganate or acidified potassium dichromate gives the following acid .....

(i) propanoic acid (ii) butanoic acid

(iii) methanoic acid **(iv) ethanoic acid**

27. The functional group of carboxylic acid is .....

(i) –OH (ii) –CHO

(iii) >C = O **(iv) –COOH**

28. The term 'organic chemistry' was first used by the Swedish chemist .....

(i) Priestly **(ii) Berzelius**

(iii) Hall (iv) Dewer

29. The scientist who first prepared urea from an inorganic compound ammonium cyanate is .....

(i) Wohler (ii) Brovon

(iii) Berzelius (iv) Mendeleev

30. Kohinor diamond is a ..... carat diamond.

(i) 24 **(ii) 105**

(iii) 128 (iv) 22

31. Fullerene consists of ..... carbon atoms.

(i) 4 (ii) 32 (iii) 48 **(iv) 60**

32. Ethanol when reacts with sodium gives ..... gas.

(i) hydrogen (ii) methane

(iii) oxygen (iv) stearm

33. Percentage of sucrose in molasses is .....

(i) 40% (ii) 60%

(iii) 25% **(iv) 30%**

34. The method of preparation of alcohol from molasses is .....

(i) esterification (**ii) fermentation**

(iii) polymerisation (iv) reduction

35. The enzyme which helps in the conversion of glucose to ethanol is .....

(i) sucrose **(ii) zymase**

(iii) invertase (iv) kirase

36. the second hydrocarbon with the formula of C_nH_{2n+2} is .....

(i) C_2H_2 (ii) C_2H_6

(iii) C_2H_4 (iv) C_2H_8

37. ..... is a good conductor of electricity unlike other non-metals.

(i) Diamond **(ii) Graphite**

(iii) Nitrogen (iv) Carbon

38. Carbon compounds have low melting and boiling points because of the ..... nature.

(i) covalent (ii) ionic

(iii) coordinate (iv) metallic

39. The chemical properties of the members of the homologous series are .....

(i) different **(ii) similar**

(iii) various (iv) not similar

40. The general formula of alkynes is .....

(i) C_nH_{2n+2} (ii) C_nH_{2n}

(iii) C_nH_{2n-2} (iv) C_nH_{2n+4}

41. The IUPAC name of the compound $CH_3\ CH_2\ CH_3$ is .....

(i) methane **(ii) propane**

(iii) n-butane (iv) butane

42. ROH is alkanol, therefore, $CH_3\ CH_2\ OH$ is .....

(i) methanol (ii) propanol

(iii) ethanol (iv) ethanol

43. Alkanes have the general formula $C_n\ H_{2n+2}$. The molecular formula of the first hydrocarbon is .....

(i) CH_4 (ii) C_2H_4

(iii) C_2H_6 (iv) C_2H_2

14. Measuring Instruments

I. Fill in the blanks

1. Screw Gauge is an instrument used to measure the dimensions of very small objects up to_____

Ans: 0.01 mm

2. In a Screw Gauge, if the zero of the head scale lies below the pitch scale axis, the zero error is _____

Ans: positive

3. The Screw Gauge is used to measure the diameter of a _____

Ans: thin wire

4. One light year is equal to

Ans: 365.25 ×24×60×60×3× 10^8m

5. One astronomical unit is the mean distance between the centre of the Earth and centre of the _____

Ans: Sun

6. Screw gauge works on the principle of _____

Ans: Screw

7. In a screw gauge, the distance between two threads is called _____ of the screw.

Ans: pitch

8. Velocity of light is _____

3× 10^8m/s

9. The Zero division of head scale does not coincide with the index line of pitch scale there is a _____

Ans: Zero error

10. Zero division of head scale is below the index line of pitch scale the error is _____

Ans: Positive error

11. The least count of ordinary scale: _____ then for screw gauge:_____

Ans: 0.1 cm, 0.01 mm

12. Screw gauge consists of _____ scale and _____ scale.

Ans: Pitch, Head

13. Screw gauge is used to measure _____ of a glass plate and _____ of a thin wire.

Ans: thickness, diameter

14. The least count is defined as the ratio of _____ to the _____.

Ans: pitch of the screw, no. of head scale divisions

15. Screw gauge works on the principle of _____ and the distance between two adjacent threads is_____

Ans: screw in a nut, pitch

16. The thickness of the glass plate is measured by screw gauge using a formula_____

Ans: P.S.R + (H.S.R × L.C) ± Z.C

II. Choose the correct answer.

1. To measure very small lengths a _____ is used.

a. metre scale b. vernier calliper

c. screw gauge d. vernier scale

2. The screw head is provided with _____ to prevent from undue pressure exerted by the user.

a. frame b. milled head

c. pitch d. **ratchet**

3. The principle of the crew is used in a _____

a. **screw gauge** b. vernier calliper

c. physical balance d. scale

4. The distance between two screw threads is called _____

a. **pitch** b. least count

c. zero error d. zero correction

5. The distance moved by the tip of the screw for a rotation of one division on the head scale is _____

a. length of the screw
b. the pitch of the screw
c. the diameter of the screw
d**. least count of the screw**

6. The pitch scale is graduated in _____

a**. millimetre**
b. metre
c. division
d. centimetre

7. The head scale is graduated in _____

a. metre
b**. division**
c. millimetre
d. centimetre

8. If the zero of the head scale coincides with the pitch scale axis, the error in the instrument is _____

a. positive
b. negative
c. **zero**
d. one

9. If the zero of the head scale is below the pitch scale axis, the error in the screw gauge is _____

a. positive
b. negative
c. zero
d. one

10. The least count of screw gauge is _____

a**. 0.01 mm**
b. 0.1 mm
c. 0.01cm
d. 0.1 cm

11. Screw gauge is used to measure_____

a. diameter of a ball bearing

b. thickness of metal sheet

c. small change in the length of rod when heated

d. **all the above**

12. The unit used to measure very long distance is _____

a. **astronomical unit** b. kilometre

c. millimetre d. none

13. The distance of the centre of the sun from the centre of the earth is _____

a. light year b. **astronomical unit**

c. angstrom d. kilometre

14. The distance travelled by light in one year in vacuum is _____

a. **light year** b. astronomic unit

c. velocity of light d. none

15. In a screw gauge, the head of the sleeve is divided into _____

a. 1000 divisions b. 10 divisions

c. **100 divisions** d. 2 divisions

16. One Astronomical unit is equal to _____

a. 1.469×10^{11} m b. 1.496×10^{-11} m

c. $\mathbf{1.496 \times 10^{11}}$ **m** d. 1.496×10^{10} m

III. Match the following

1.

1. Distance between two successive thread of a screw	a. Millimetre
2. pitch scale	b. Laser pulse method
3. Least count of the screw	c. Pitch of the screw
4. Distance of a moon from the earth	d. Pitch/ No. of head scale divisions

Ans: 1-c,2-a,3-d,4-b

15. Laws of motion and gravitation

I. Choose the correct answer

1. When a force is exerted on an object, it can change its_____

a. state b. shape

c. position d. **all the above**

2. SI unit of force is _____

a. Dyme b. **Newton**

c. $kgms^{-1}$ d. Joule

3. Force is a _____ quantity.

a. **vector** b. fundamental

c. scalar d. none

4. An imbalanced force acts on a body, the body_____

a. must remain at rest **b. must be accelerated**

c. must move with uniform velocity d. move with uniform motion

5. The laws of motion of a body is given by _____

a. Galileo b. Archimedes

b. Einstein d. **Newton**

6. When two or more forces acting on a body and the body does not change its position then the forces are _____

a. imbalanced b. mechanical force

c. **balanced forces** d. none

7. From the following statements write down that which is not applicable to mass of an object:

a. It is a fundamental quantity b. It is measured using physical balance

c. **It is measured using spring balance** d. It is the amount of matter

8. Newton's first law of motion defines_____

a. inertia b. force

c. acceleration d. **both inertia and force**

9. An object cannot change the state of rest or motion, until any force is applied. This inability of the object is called _____

a. i**nertia** b. mass

c. weight d. acceleration

10. When an object undergoes acceleration_____

a. its velocity increases b. its speed increases

c. its motion is uniform d**. a force always acts on it**

11. on what factor does inertia of a body depend?

a. volume b. area

c. **mass** d. density

12. A motor car starts from rest and moves after 5 seconds, if its velocity is 200m/s then its acceleration is_____

a. 100 m/s^2 b**. 40 m/s^2**

c. 20 m/s^2 d. 80 m/s^2

13. If mass of an object is m, velocity v, acceleration a and applied force is F and momentum p is given by _____

a**. p= m x v** b. p = m x a

c. p = $\frac{m}{v}$ d. p = $\frac{v}{m}$

14. Which of the following is a vector quantity?

a. speed b. distance

c**. momentum** d. time

15. The inability of the body to change its state is _____

a. force b. momentum

c. acceleration d. **inertia**

16. Force is measured based on _____

a. Newton's first law b. **Newton's second law**

c. Newton's third law d. all the above

17. Force measures rate of change of_____

a. acceleration b. velocity

c. **momentum** d. distance

18. When a net force acts on an object, the object will be accelerated in the direction of force with an acceleration proportional to ____

a**. force on the object** b. velocity

c. mass d. inertia

19. The momentum of a given mass of a body is proportional to_____

a. density **b. velocity**

c. shape d. volume

20. A bus of 800 kg increases its velocity from 5 m/s to 10 m/s within 10 seconds by a constant force. The magnitude of the applied force is _____

a. 4000 N b. **400 N**

c. 800 N d. 200 N

21. A force of 48 N acts on a body of mass 10 kg on a horizontal plane. Its acceleration is _____

a. 2.4 m/s^2 b. 1.2 m/s^2

c. 9.6 m/s^2 d. **4.8 m/s^2**

22. The acceleration of a body is due to _____

a. balance force b. electrostatic force

c. **unbalanced force** d. conservative force

23. A force applied on an object is equal to

a. product of mass and velocity b. sum of mass on the same body

c. **product of mass and acceleration** d. sum of mass and acceleration

24. Action and reaction do not balance each other because they_____

a. act on the same body b**. do not act on the same body**

c. are in opposite direction d. are unequal

25. The unit of weight is _____

a. kg b. g

c. **Newton** d. ms^{-2}

26. Action and reaction forces are _____

a. equal in magnitude

b. equal in direction

c. opposite in direction

d**. both equal in magnitude and opposite in direction**

27. If mass of a body is doubled then its acceleration becomes_____

a. **halved** b. doubled

c. thrice d. zero

28. The principle involved in the working of a jet plane is _____

a. Newton's first law b. **conservation of momentum**

c. law of inertia d. Newton's second law

29. In a collision between a heavier body and a lighter body, which body experiences greater force?

a. heavier body b. lighter body

c. **both the body experience same force** d. both body exchange acceleration

30. A gun gets kicked back when a bullet is fired. It is a good example of Newton's _____

a. gravitational law b. first law

c. second law d. **third law**

31. The law of conservation of momentum states that the momentum of a system _____

a. cannot be changed b. is constant

c. **can be changed by an external force** d. cannot be constant

32. When a bus starts suddenly the passengers in the standing position are pushed backwards, this action is due to _____

a. **first law of motion** b. second law

c. third law of motion d. conservation momentum

33. When a body at rest breaks into pieces of equal masses, then the parts will move_____

a. in same direction

b. along different directions

c. in opposite directions with unequal speeds

d. in opposite directions with equal speeds

34. The principle of function of a jet aeroplane is based on _____

a. first law of motion b. second law of motion

c. **third law of motion** d. all the above

35. Which of the following has the largest inertia?

a. pin b. book

c. pen **d. table**

36. An athlete runs a long path before taking a long jump to increase____

a. energy b. inertia

c. **momentum** d. force

37.Which is incorrect statement about the action and reaction referred to Newton's third law of motion?

a. They are equal b. They are opposite

c. **They act on the same object** d. They act on two different objects

38. The tendency of a force to rotate a body about a given axis is called _____

a. turning effect of a force b. moment of force

c. torque **d. all the above**

39. The magnitude of the moment of force is _____

a**. product of force and the perpendicular distance**

b. product of force and velocity

c. ratio of force to the acceleration

d. ratio of force to the perpendicular distance

40. If the force rotates the body in the anticlockwise direction, then the moment is called _____

a. clockwise moment b. **anticlockwise moment**

c. couple d. torque

41. Anticlockwise moment is _____

a. **positive** b. negative

c. opposite d. zero

42. Clockwise moment or torque is _____

a. zero b. always one

c. negative d. positive

43. SI unit of moment of force is _____

a. Nm^{-2} b. Nm^{-1}

c. Ns **d. Nm**

44. Moment of force produces _____

a. acceleration b. linear motion

c. velocity **d. angular acceleration**

45. Two equal and opposite forces whose lines of action do not coincide are said to constitute a _____

a. **couple** b. torque

c. unlike force d. parallel force

46. couple produces_____

a. translator motion b. **rotator motion**

c. translator as well as rotator motion d. neither translator nor rotatory

47. _____ is an example of couple

a. opening or closing a tap b. turning of a key in a lock

c. steering wheel of car d. **all the above**

48. Force of attraction between any two objects in the universe is called _____

a**. gravitational force** b. mechanical force

c. magnetic force d. electrostatic force

49. Universal law of gravitation was given by _____

a. Archimedes b. Aryabhatta

c. Kepler **d. Newton**

50. The force of gravitation between two bodies does not depend on_____

a. heavy bodies only b. small sized objects

c. **light bodies** d. objects of any size

52. The value of gravitational constant(G) is _____

a. different at different places b. same at all places in the universe

c. different at all places of earth d. **same only at all the places of earth**

53. The value of G is _____

a. 6.673 x 10^{-11} N m^2 kg^{-2} b. **9.8 m/ s^2**

c. 6.67 x 10^{-8} N m^2 kg^{-2} d. 980 m/s

54. The unit of gravitational constant is _____

a. **N m^2 kg** b. kgms^{-2}

c. N m^2k g^{-2} d. ms^{-2}

55. The weight of an object is _____

a. the quantity of matter it contains

b. its inertia

c**. same as its mass**

d. the force with which it is attracted by the earth

56. In vacuum, all freely falling objects have the same _____

a. speed b. velocity

c. force d. **acceleration**

57.The acceleration due to gravity _____

a. has the same value everywhere in space

b. has the same value everywhere on earth

c. **varies with the latitude on earth**

d. is greater on moon due to its smaller diameter

58. When an object is thrown up, the force of gravity _____

a. **is opposite to the direction of motion**

b. is in the same direction as direction of motion

c. decreases as it rises up

d. increases as it rises up

59. The SI unit of acceleration due to gravity 'g' is _____

a. ms^{-1} b. ms

c. $\boldsymbol{ms^{-2}}$ d. ms^2

60. What happens to the value of 'g' as we go higher from surface of earth?

a. **decreases** b. increases

c. no change d. zero

61. Mass of a body on moon is _____

a. **the same as that on the earth** b. $\frac{1}{6}$ th of that at the surface of the earth

c. 6 times as that on the earth d. none of these

62. At which place is the value of 'g' is zero?

a. at poles **b. at centre of the earth**

c. at equator d. above the earth

63. The weight of the body is maximum _____

a. at the centre of the earth b. **on the surface of earth**

c. above the surface of earth d. none of the above

64. A rock is brought from the surface of the moon to the earth, then its _____

a. **weight will change** b. mass will change

c. both mass and weight will change d. mass and weight will remain the same

65. Why is the acceleration due to gravity on the surface of the moon is lesser than that on the surface of earth?

a. because mass of moon is less b. radius of moon is less

c. mass and radius of moon is large d. **mass and radius of moon is less**

66. If the distance between two bodies is doubled, then the gravitational force between them is _____

a. halved b. doubled

c. **reduced to one-fourth** d. increased by one fourth

67. Mass of the earth is _____

a. 5.89×10^{24} kg b. **5.98×10^{24}kg**

c. 6.023×10^{23} kg d. 3×10^{8} kg

68. An artificial structure designed for humans to live and work in outer space is _____

a. space ship b. space shuttle

c. **space station** d. space probe

69. Which cryogen is legally purchasable throughout the world?

a. liquid helium b. liquid hydrogen

c. **liquid nitrogen** d. all the above

70. The issues that limit long term habitability in space station is _____

a. lack of gravity b. very low recycling rates

c. relatively high radiation levels d. **all the above**

71. The third country to launch a space station is _____

a. USA b. France

c. India d**. China**

72. The main achievement of Chandrayaan I is _____

a. **presence of water molecules in moon** b. mapping and surveying

c. weather monitoring d. telecommunication

73. The weak solar flares are detected by _____

a. Terrain Mapping Camera(TMC)

b. Lunar Laser Ranging Instrument (LLRI)

c. **Chandrayaan I Imaging X-ray Spectrometer(CIXS)**

d. Hyper Spectral Imager(HYSI)

74. The Terrain Mapping Camera has taken _____

a. signatures of aluminium and silicon b. **images of peaks and craters**

c. images of large caves d. images of the earth

75. For how much time is Chandrayan operated?

a. 312 months b. 365 days

c**. 312 days** d. 96 days

76. A force of 48N acts on a body of mass 6 kg on a horizontal plane. Its acceleration is _____

a. 4ms^{-2} b. **8 ms^{-2}**

c. 288 ms^{-2} d. 0.125 ms^{-2}

77. A bus starts for rest and moves after 4 seconds. Its velocity is 100 ms^{-1}. Its uniform acceleration is_____

a. 10 ms^{-2} **b. 25 ms^{-2}**

c. 400 ms^{-2} d. 2.5 ms^{-2}

78. A body of mass 10 kg increases its velocity from 2 m/s to 8 m/s within 4 second by the application of a constant force. The magnitude of the applied force is _____

a. 1.5 N b. 30N

c. **15N** d. 150N

79. Which of the following is used for specially chilling and freezing applications?

a. liquid helium b. liquid hydrogen

c. liquid ammonia d. **liquid nitrogen**

80. The moment of force in clockwise direction is _____ the moment in the anticlockwise direction.

a. **equal to** b. lesser than

c. greater than d. none

81. Which one of the following is scalar quantity?

a. momentum b. moment of force

c. speed d. velocity

82. Name the space station used for military and civilian purposes.

a. Sky lab b. Mir

c. Tiangong 1 d. **Salyut**

83. The space station Salyut was launched by _____

a. **Soviet Union** b. United States

c. Japan d. China

84. Name the space station to be launched by China.

a. Sky lab b. **Tiangong 1**

c. Mir d. Salyut

85. The unit newton can also be written as_____

a. kgm b. kg ms^{-1}

c. **kg ms^{-2}** d. kg m^{-2}s

86. To change the state or position of an object _____ force is essential.

a. balanced b**. imbalanced**

c. electric d. elastic

87. The acceleration in a body is due to_____

a. balanced force b. **unbalanced force**

c. electro static force

88. The physical quantity which is equal to the rate of change of momentum is _____

a. displacement b. acceleration

c. **force** d. impulse

89. The momentum of a massive object at rest is_____

a. very large b. very small

c. **zero** d. infinity

90. The weight of a person is 50kg. The weight of that person on the surface of the earth will be _____

a. 50 N b. 35 N

c. 380 N d. **490N**

91. The freezing of biotechnology products like vaccines require _____ freezing system.

a. Helium b. **Nitrogen**

c. Ammonia d. Chlorine

II. Match the following

1.

1. Relation between 'g' and 'G'	a. $F=G\frac{m_1 m_2}{r^2}$
2. Universal gravitational law	b. W=mg
3. Mass of an object is measured by	c. Physical balance
4. Unit of g	d. $g = \frac{GM}{r^2}$
5. Relation between mass and weight	e.m/s^2

Ans: 1-d,2-a,3-c,4-e,5-b

2.

1.

1. Resultant of the forces is zero	a. Law of conservation of momentum
2. Newton's first law	b. Vector
c. Force	c. Quantitative definition of force
4. Newton's third law	d. balanced force
5. Newton's second law	e. Inertia

Ans: 1-d,2-e,3-b,4-a,5-c

3.

1. Liquid Helium	a. Lunar Laser Ranging Instrument
2. Sky lab	b. Magnetic resonance imaging
3. Liquid nitrogen	c. lunar probe

4. LLRI d. space station

5. Chandrayaan-I e. Freezing

Ans: 1-b,2-d,3-e,4-a,5-c

III. Fill in the blanks

1. Force = mass x _____ and Newton is the unit of _

Ans: acceleration, force

2. Momentum is the product of _____ and _____

Ans: mass, velocity

3. To produce an acceleration of 1m/s^2 in an object of mass 1kg. the force required is _____ and for 3kg of mass to produce same acceleration, the force required is _____

Ans: 1N, 3N

4. Two or more forces are acting in an object and does not change its position, the forces are _____ and it is essential to act some _____ force, to change the state or position of an object.

Ans: balanced, unbalanced

5. The force of attraction between two objects is directly proportional to the product of their _____ and inversely proportional to the square of the _____ between them.

Ans: masses, distance

6. The value of g varies with _____and _____

Ans: altitude, depth

7. The value of gravitational constant is _____ at all places but the value of acceleration due to gravity _____

Ans: same, differs

8. If a feather and coin are released in vacuum. They will reach the ground at the _____ and gravitational acceleration always acts towards _____ of earth.

Ans: same rate, centre

9. The space stations_____ and _____ have been monolithic.

Ans: Salyut, skylab

16. Electricity and Energy

I. Choose the correct answer

1. Electric current is defined as the rate of flow of_____

a. energy b. power

c. mass d**. charges**

2. Electric charge is expressed in _____

a. Volt b. Joule

c. **Coulomb** d. Ohm

3. The unit of electric current is _____

a. ampere b. volt

c. watt d. kilo-watt

4. 1 Coulomb of charge is equivalent to the charge of _____

a. **6.25×10^{18} electrons** b. 6×10^{18} protons

c. 1.6×10^{-19} electrons d. 1.6×10^{-19} protons

5. Which instrument is used to measure current?

a. voltmeter **b. ammeter**

c. galvanometer d. ohmmeter

6. The amount of work done to move a unit charge from one point to the other is _____

a. resistance b. current

c. p**otential** d. none of the above

7. Which quantity is measures by voltmeter?

a. current **b. potential**

c. resistance d. capacitance

8. Ohm's law gives the relation between potential difference and _____

a. emf b. temperature

c. resistance d. **current**

9. The equation of ohm's law_____

a. $\frac{V}{I}$ **= R** b. V = $\frac{I}{R}$

c. VR= I d. VI= R

10. In an electrical circuit, voltmeter reads 24V and ammeter reads 6A. the value of resistance is _____

a. 40Ω b. 2 Ω

c. 0.25 Ω d. **4 Ω**

11. Ohm is also expressed as _____

a. **volt/ampere** b. volt/coulomb

c. newton d. none

12. Which property of a body oppose the flow of electric charge through it?

a. potential b**. resistance**

c. temperature d. none

13. When more than one resistors are in series, which quantity remains the term?

a. **Current** b. Potential difference

c. Resistance d. Power

14. To increase resistance, one should use combination of resistors in _____

a. series b. parallel

c. series and parallel d. **series always**

15. The effective resistance of the resistors in parallel is given as _____

a. $R_p = R_1 + R_2$ b. $R_p = \frac{1}{R_1} + \frac{1}{R_2}$

c. $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$ d. $\frac{1}{R_p} = R_1 + R_2$

16. Which quantity remains the same when resistors are connected in parallel?

a. current b**. potential difference**

c. emf d. resistance

17. 1 Joule / 1 coulomb_____

a. 1 watt b. 1 kwh

c**. 1 volt** d. 1 ampere

18. How much heat is generated when current I is passing through a resistor for time

a. $\boldsymbol{I^2Rt}$ b. IR^2t

c. VI d. I^2R

19. When a resistance of 6Ω is connected with a cell of electromotive force 1.5V, the current flowing through the cell is _____

a. 2A b**. 0.25A**

c. 0.5A d. 9A

20. Three resistances 2 Ω, 2 Ω and 2 Ω are connected in parallel with each other. The effective resistance is _____

a. 1.5 Ω b. **0.66 Ω**

c. 6 Ω d. 0.75 Ω

21. The value of current flowing through a circuit consisting of two resistances 6 Ω and 18 Ω in series with a battery of 3 Ω is_____

a. 0.5A b. **0.125A**

c. 6A d. 0.25A

22. Which of the following is used to measure potential difference?

a. ammeter b. galvanometer

c. **voltmeter** d. wattmeter

23. The work done in moving a charge of 10c through two points having potential difference of 5V is_____

a. 100J b**. 50J**

c. 5J d. 250J

24. The commonly used safely fuse wire is made of_____

a. nickel b. lead

c. **an alloy of tin and lead** d. copper

25. According to international convention of colour coding in a wire_____

a. **live is red, neutral is black** b. live is red, neutral is green

c. live is brown, neutral is blue d. live is green, neutral is black

26. Kilowatt-hour is the unit of _____

a. potential difference b. electric power

c**. electrical energy** d. charge

27. One kilowatt-hour is _____

a. $\mathbf{3.6 \times 10^6\ J}$ b. 1000W

c. 3600 Ws^{-1} d. 2.778 x 10^3J

28. Name the physical quantity which is measured in KW____

a. electric energy b. **electric power**

c. electric current d. electric potential

29. Negatively and positively charged ions which are free to move constitute a current_____

a. In conductors b. **In an electrolytes**

c. In metals d. In liquids

30. Who built the first battery?

a. Lechlanche b. Daniel

c. **Volta** d. Edison

31. In cells, chemical energy is converted into _____

a. mechanical energy b. heat energy

c. sound energy d. **electrical energy**

32. Which of the following is not connected with a voltaic cell?

a. copper electrode b. **spongy lead**

c. voltage d. dil. H_2SO_4

33. The emf generated in voltaic cell is _____

a. 1.5 V b. 2V

c**. 1.08V** d. 2.2V

34. In _____ positively and negatively charged ions that are free to move constitute an electric current.

a. conductors b. **metals**

c. liquids d. electrolyte

35. The emf 1.5V is produced by _____

a. Daniel cell b. Voltaic cell

c. **Lechlanche** d. Lead acid accumulator

36. Which of the following is not a primary cell?

a. Daniel cell b. Lechlanche

c. **Lead acid accumulator** d. none

37. Which of these is not a feature of Daniel cell?

a. Copper vessel b. Zinc rod

c. Copper sulphate solution d. **Carbon rod**

38. Charging is a process of reproducing _____

a. **active materials** b. current

c. voltage d. power

39. The emf obtained from secondary cell is _____

a. 1.08V b. 1.5V

c**. 2.2 V** d. 1.2 V

40. A good fuel should _____

a. provide large amount of energy b. be easily accessible

c. be easy to store and transport d. **all the above**

41. Which of the following is non-renewable source of energy?

a**. Coal** b. Sun

c. Gobar gas d. Tides

42. The electrolyte used in voltaic cells is _____

a. conc. H_2SO_4 b. Manganese dioxide

c. Ammonium chloride d. **dil.** $\boldsymbol{H_2SO_4}$

43. The change that extracts electric current from a secondary cell is _____

a. charging b. electrostatic induction

c. electromagnetic induction d. **discharging**

44. Which of the following is formed under the earth over millions of years?

a. coal b. petroleum

c. natural gas d. **all the above**

45. Choose the source of energy which is different from others _____

a. wood b. falling water

c. wind d. **petroleum**

46. In a thermal power plant, energy of _____ is used.

a. blowing wind b. **burning fuel**

c. flowing water d. breaking of heavy atom

47. Energy of flowing water is use in a _____

a. wave energy plant b. thermal power plant

c. **hydro power plant** d. nuclear power plant

48. Hydro power plants generate _____

a. nuclear energy b. thermal energy

c. **electrical energy** d. wind energy

49. In hydro power plants_____ is converted into electrical energy.

a. potential energy b**. kinetic energy**

c. nuclear energy d. thermal energy

50. A wind mill converts _____ into electrical energy.

a. **kinetic energy** b. thermal energy

c. potential energy d. sound energy

51. To maintain the required speed of the turbine, the speed of the wind should be _____

a. **higher than 15 km per hour** b. higher than 15 km per second

c. lesser than 15 km per hour d. lesser than 15 m per second

52. Which of the following is renewable source of energy?

a. wood b. wind

c. flowing water **d. all the above**

53. Out of 60 W and 40W lamps, which one was a higher electrical resistances when in use?[P= I^2R]

a. 40W b. **60W**

c. both have equal resistances d. none

54. When a blackened plate is placed in sunlight, its temperature will_____

a. decrease continuously

b. increase continuously

c. **increase for some time and then remains constant**

d. remains constant

55. Pollution can be minimised when food is cooked _____

a. burning of coal b. burning of cooking gas

c. burning of wood d. **using a solar cooker**

56. Ultimate source of all renewable energy on earth_____

a. wind b. Petroleum

c. **Sun** d. Coal

57. Which statement is incorrect about a solar cooker?

a. it causes no pollution

b. Nutrients of food are not destroyed

c. Use of solar cooker for cooking food saves fuel

d. **It can cook the food at any time**

58. Which of the following converts solar energy directly into electricity?

a. Solar cooker b. Solar water heater

c. **Solar cell** d. Solar dryer

59. The source of Sun's energy is _____

a. burning of hydrogen b. solar flares

c. **nuclear fusion** d. combustion of coal present in its crust

60. Which sources of energy are not related to energy of Sun?

a. Wave energy **b. nuclear energy**

c. Tidal energy d. Wind energy

61.The process of splitting heavy atom into lighter nuclei is _____

a. **nuclear fission** b. nuclear fusion

c. nuclear reaction d. radioactivity

62. In nuclear reactor energy is released due to _____

a. controlled nuclear fusion b. uncontrolled nuclear fusion

c. **controlled nuclear fusion** d. uncontrolled nuclear fission

63. The phenomenon of radioactivity is discovered by _____

a. Marie Curie b. Rutherford

c. Roentgen d. **Hentry Becquerel**

64. Marie Curie and Pierre Curie discovered _____

a. **radioactive elements** b. X-ray

c. γ – ray d. radioactivity

65. The radiations emitted by natural radioactive elements_____

a. IR rays b. UV rays

c. X-rays **d. α, β, γ rays**

66. The radioactive phenomenon is not affected by _____

a. temperature b. pressure

c. electric and magnetic fields **d. all the above**

67. Who discovered nuclear fission?

a. Henri Becqueral b. **Otto Hahn and Strass man**

c. Marie and Pierre Curie d. Roentgen

68. The amount of energy released during nuclear fission of uranium ${}_{92}U^{235}$ is_____

a. **200 MeV** b. 200KeV

c. 200eV **d**. 200J

69. Nuclear fusion is a process of _____

a. breaking of heavy atom b. combining heavy nuclei

c**. combining lighter nuclei** d. breaking of light atom

70. Einstein's mass-energy relation is _____

a. $E=\frac{m}{c^2}$ b. **$E= mc^2$**

c. $E= h\gamma$ d. $\frac{1}{2}mc^2$

71. The fusion reactions occur at _____

a. low pressures b. low temperatures

c. **extremely high temperature** d. high pressure

72. The nuclear fusion reaction is known as _____

a. **thermo nuclear reaction** b. chemical reaction

c. physical reaction d. chain reaction

73. The energy produced when 1 kg of a substance is fully converted into energy is _____

a. **9×10^{16} J** b. 9×10^8 J

c. 18×10^8J d. 18×10^{16} J

74. A hydrogen bomb is an example for an _____

a. controlled nuclear fission b. uncontrolled nuclear fission

c. controlled nuclear fusion d. **uncontrolled nuclear fusion**

75. An uncontrolled fission reaction takes place in an _____

a. **atom bomb** b. hydrogen bomb

c. nuclear reactor d. sun

76. The measure of the departure of a reactor from critically is called _____

a. Roentgen b. **nuclear reactivity**

c. curie d. nuclear activity

77. Roentgen is the unit of _____

a. nuclear activity b. **radiation exposure**

c. intensity of radiation d. speed of nuclear reaction

78. The safe limit of receiving the radiation is _____

a. **250mR per week** b. 250 R per week

c. i 250mR per day d. 500mR per week

79. Radioactive materials are kept in _____

a. thin walled lead container b. thick walled copper container

c. thin walled aluminium container d. **thick walled lead container**

80. To check the safety limit of radiation _____ is worm.

a. lead aprons b. lead gloves

c. **small micro film badge** d. none of these

81. Energy available from the oceans is _____

a. tidal energy b. wave energy

c. ocean thermal film badge **d. all the above**

82. The energy available due to the difference in the temperature of water at the surface of the ocean and at deeper levels is called _____

a. tidal energy b. wind energy

c. solar energy d. **ocean thermal energy**

83.Tidal energy is due to gravitational pull of _____

a. **moon** b. earth

c. sun d. mars

84. The difference in sea levels gives _____

a. wind energy b. wave energy

c. **tidal energy** d. OTE

85. Which of the following pair of energy does not create pollution?

a. Solar energy and biogas b. **Solar energy and wind energy**

c. Tidal energy and coal d. Natural gas and bio mass

86. The renewable source of energy is_____

a. **tidal energy** b. coal

c. petroleum d. natural gas

87. Tidal energy is harnessed by constructing _____

a. **dams** b. wind mill

c. biomass unit d. geothermal unit

88. What is the amount of current, when 20C of charges flows in 4S through a conductor? [I= q/t]

a. **5A** b. 80A

c. 4A d. 2A

89. The symbol of Ammeter is _____

a. V b. **A**

c. G d. I

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90. The main source of bio-mass energy is _____

a. coal b. heat energy

c. thermal energy d. **cow-dung**

91.The potential difference required to pass a current 0.2A in a wire of resistance 20 ohm is _____

a. 100V b. **4 V**

c. 0.01V d. 40V

92.Two electric bulbs have resistances in the ratio 1:2. If they are joined in series, the energy consumed in these are in the ratio _____

(**1:2** , 2:1, 4:1, 1:1)

93. Kilowatt-hour is the unit of _____

a. potential difference b. electric power

c. **electric energy** d. charge

94. _____surface absorbs more heat than any other surface under identical conditions.

a. White b. Rough

c**. Black** d. Yellow

95. The atomic number of natural radioactive element is _____

a. **greater than 82** b. less than 82

c. not defined d. at least 92

96. Which one of the following statements does not represents Ohm's law?

a. current/potential difference = constant

b. potential difference/ current = constant

c**. current = resistance x potential difference**

II. Fill in the blanks.

1. The flow of charges: Electric current. A continuous closed path of an electric current is _____. The unit of charge: coulomb then current _____

Ans: Electric circuit, Ampere

2. Electric current I: Charge(Q)/ _____ while electric potential V is _____

Ans: Time(t), Work done(W)/ Charge(Q)

3. In series connection of resistors: _____. Then for parallel connection of resistors:_____

Ans: Current is same, potential difference is same

4. The transformation of energy in Electric oven: _____ Electric cell_____

Ans: electrical into heat energy, Electrical into chemical energy

5. The expressions is obtained from ohm's law _____ joule's law_____

Ans: $V=IR$, $H=I^2Rt$

6. The unit of electric power _____ the electric energy_____

Ans: kilowatt, watt hour

7. Examples of non renewable sources of energy _____ renewable sources of energy _____

Ans: fossil fuels(coal, petroleum and natural gas), solar energy, wind, ocean energy

8. Breaking of heavy nucleus is _____ combining of lighter nuclei is _____

Ans: nuclear fission, nuclear fusion

9. The equivalent of 1 volt _____ then for 1 ohm_____

Ans: 1 joule/ 1 coulomb, 1 volt/ 1 ampere

10. The tap-key is used to _____ and _____ an electric circuit.

Ans: open, close

11. The opposition to flow of current is called _____and its unit is _____

Ans: resistance, ohm

12. The heat developed in a conductor is directly proportional to the square of _____ and ____ of flow.

Ans: current, time

13. Charcoal burns without flames is _____ and has higher _____

Ans: smokeless, heat efficiency

14. Bio gas is mainly obtained from _____ and popularly known as _____

Ans: cow dung, go bar-gas

15. The rotatory motion of the windmill is used to turn the _____ of the electric generator to generate_____

Ans: turbine, electricity

16. The principal advantages associated with solar cells are that they have _____ and require_____

Ans: no moving part, little maintenances

17. In a nuclear reactor _____ reaction releases energy in a _____ manner.

Ans: fission chain, controlled

18. Madam Marie Curie and her husband discovered the highly radioactive elements _____ and _____

Ans: radium, polonium

19. The measure of the departure of a reactor from criticality is_____

Ans: nuclear reactivity

20. The fusion process can be carried out at extremely high temperature of the order _____ and these fusion reactions are known as_____

Ans: 10^7 k, thermo nuclear reactions

21. The important primary cells are _____ and _____.

Ans: Daniel, Leclanche cell

22. The amount of energy produced by nuclear fission is _____ times the energy produced by combination of an atom of carbon from _____

Ans: 10 million, coal

23.If the reactivity is positive then the reactor is _____ and the reactivity is negative then the reactor is _____

Ans: super critical, sub critical

17. Magnetic effect of electric current and light

I. Fill in the blanks.

1. The magnification produced by a mirror is + $\frac{1}{3}$. Then the mirror is a _____

Ans: concave mirror

2. The phenomenon of producing an emf in a circuit whenever the magnetic flux linked with a coil changes is _____

Ans: electromagnetic induction

3. An electric current through a metallic conductor produces _____ around it.

Ans: magnetic field

4. The field of view is maximum for _____

Ans: convex mirror

5. An object is placed 25cm from a convex lens whose focal length is 10cm. the image distance is _____

Ans: 16.66cm

II. Choose the correct answer.

1. The space surrounding a magnet where a magnetic force is experienced is called _____

a. magnetic field b. magnetic lines of force

c. magnetic poles d. magnetic induction

2. The path taken by the north pole is called _____

a. magnetic force b. magnetic field

c. **magnetic lines of force** d. magnetic intensity

3. The characteristics of magnetic lines of forces is _____

a. field lines emerges from north pole and merge at south pole

b. closed curves

c. never cross each other

d. **all the above**

4. When current flows in a wire, it creates_____

a. an electric field outside

b. magnetic field around it

c. both the electric and magnetic fields

d. neither the electric nor the magnetic fields

5. What is the direction of magnetic needle placed near the conductor in which current flows in clockwise direction?

a. move towards east

b. move towards west

c. No movement

d. Move opposite i.e. south to north

6. A current through a horizontal power line flows in east to west direction. What is the direction of the magnetic field at a point directly below it?

a. South to north

b**. North to south**

c. East to west

d. West to east

7. which of the following correctly describes the magnetic field near a long straight wire?

a. The field consists of straight lines perpendicular to the wire

b. The field consists of straight lines parallel to the wire

c. The field consists of radial lines originating from the wire

d. The field consists of concentric circles centred on the wire

8. The direction of magnetic field around a straight conductor carrying current can be determined by _____

a. Fleming's right hand rule

b. Fleming's left hand rule

c. Lenz's law

d. None of the above

9. Magnetic field is produced by the flow of current in a straight wire. This phenomenon was discovered by _____

a. Maxwell b. Faraday

c. Oersted d. Coulomb

10. The magnetic lines of force, inside a current carrying circular loop are_____

a. circular at the ends but they are parallel to the axis inside the loop

b. along the axis are parallel to each other

c. perpendicular to the axis and equidistance from each other

d. concentric circles

11. What is the direction of magnetic field at the centre of a coil carrying current in anticlockwise direction?

a. along the axis of the coil inwards

b. along the axis of the coil emerges outwards

c. perpendicular to the axis of the coil inwards

d. perpendicular to the axis of the coil outwards

12. The strength of the magnetic field due to a current carrying conductor depends on _____

a. number of turns of a coil

b. magnitude of current

c. size of the coil

d. all the above

13. The magnetic field produced due to a circular wire at its centre is _____

a. in the plane of the wire

b. perpendicular to the plane of the wire

c. at 45^0 to the plane of the wire

d. none of the above

14. A current carrying conductor placed in a magnetic field experiences_____

a. mechanical force

b. magnetic force

c. electrical force

d. gravitational force

15. A current carrying conductor experiences a force in a magnetic field was shown by _____

a. Hans Christian Oersted

b. Michael Faraday

c. Andre Marie Ampere

d. Fleming

16. Name the effect of current when a current carrying conductor is placed in a magnetic field_____

a. electrical effect

b. mechanical effect

c. magnetic effect

d. heating effect

17. The direction of mechanical force produced by a current carrying conductor in a magnetic field is _____

a. perpendicular to the direction of magnetic field only

b. perpendicular to the direction of current flow

c. perpendicular to both the direction of current and magnetic field

d. parallel to the direction of magnetic field

18. The direction of force on the current carrying conductor depends upon_____

a. direction of current

b. direction of magnetic field

c. direction of suspension of a conductor

d. direction of current and direction of magnetic field

19. The magnitude of mechanical force acting on a current carrying conductor in proportional to _____

a. current

b. magnetic induction

c. length of the conductor

d. all the above

20. The force of a conductor is maximum when the current carrying conductor is _____

a. along the magnetic field

b. at right angles to the magnetic field

c. towards east

d. towards west

21. When the current carrying conductor is placed along the direction of magnetic field, then the force is _____

a. maximum b. minimum

c. zero d. equal to one

22. When a current carrying conductor is placed in a strong magnetic field, the direction of force is determined by _____

a. Right hand thumb rule

b. Fleming's left hand rule

c. Fleming's right hand rule

d. Faraday's law

23. In Fleming's left hand rule, the first three fingers of the left hand are stretched at _____

a. acute angles b. obtuse angles

c. right angles d. 180^0

24. The motion of the conductor in Fleming's left hand rule is represented by _____

a. fore finger b**. thumb**

c. middle finger d. none

25. In Fleming's left hand rule, the forefinger represents the direction of_____

a. **magnetic field** b. current

c. motion of a conductor d. electric field

26. The direction of current in Fleming's left hand rule is represented by _____

a. thumb b. forefinger

c. **middle finger** d. little finger

27. An electric motor converts_____

a. mechanical energy into electrical energy

b. mechanical energy into heat energy

c. electrical energy into heat energy

d. electrical energy into mechanical energy

28. The principle of electric motor is based on _____

a. mechanical effect of current

b. electric induction

c. magnetic induction

d. heating effect of current

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29. The coil used in a DC motor is called _____

a. split ring b**. armature**

c. resistance coil d. induction coil

30. In DC motor, the split rings are known as _____

a. slip rings b. armature

c. **commutator** d. resistor

31. An electric motor uses _____ to reverse current.

a. transformer b. sliprings

c. **commutator** d. brushes

32. The direction of force in DC motor is given by _____

a. Fleming's left hand rule

b. Fleming's right hand rule

c. Right hand thumb rule

d. Lenz law

33. In DC motor, the two equal and opposite forces constitutes_____

a. torque b. magnetic induction

c. couple d. restoring

34. In DC motor, the couple rotates the coil in the _____

a. clockwise direction b. upward direction

c. **anticlockwise direction** d. downward direction

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35. The coil in electric motor continues to rotate in the anticlockwise direction as long as____

a. existence of magnetic field

b. current in the coil is zero

c. at restoring force in the coil

d. current flows through it

36. The couple in an electric motor is to ____

a. vibrate the coil b. stop the coil

c. rotate the coil d. oscillate the coil

37. The power of an electric motor can be increased by _____

a. increasing the number of turns in armature

b. decreasing the number of turns in the coil

c. decreasing the current

d. decreasing the strength of the magnetic field

38. In an electric motor when the current is increased, _____

a. energy is increased b. power is decreased

c. power is increased d. energy is decreased

39. The total number of magnetic lines of forces crossing a given area is _____

a. magnetic field b. magnetic induction

c. magnetic strength **d. magnetic flux**

40. The commercial motors use_____

a. electro magnet b. permanent magnet

c. horse shoe magnet d. bar magnet

41. The phenomenon of electromagnetic induction was discovered by _____

a. Ampere b. Christian Oersted

c. Lenz d. **Michael Faraday**

42. Electromagnetic induction is involved in _____

a. rotation of the coil of an electric motor

b. charging a body with negative

c. production of current by relative motion between a magnetic and a coil

d. generation of magnetic field due to a current carrying loops

43. The generation of emf by varying the magnetic field is _____

a. electrostatic induction b. magnetic induction

c. electromagnetic induction d. mechanical effect of current

44. In Faraday's experiments, there is a deflection in the galvanometer when a _____

a. magnet is moved towards the coil

b. coil is moved towards the magnet

c. by changing the magnitude of current

d**. all the above**

45. The current due to the relative motion between the coil and the magnet is called_____

a. direct current b. alternating current

c. induced current d. none of these

46. The phenomenon of inducing an emf, when the magnetic flux linked with a coil, changes is called_____

a**. electromagnetic induction** b. electric induction

c. electrostatic induction d. magnetic induction

47. The induced emf depends on _____

a. magnetic induction

b. number of turns of the coil

c. relative speed between the magnet and the coil

d**. all the above**

48. The induced emf is independent on _____

a. magnetic induction

b. number of turns of the coil

c. relative speed between the magnet and the coil

d**. length of the magnet**

49. Who stated that whenever there is a change in the magnetic flux linked with a coil an emf is induced in it?

a**. Faraday's law** b. Newton's law

c. Fleming's left hand rule d. generator rule

50. The direction of induced current is given by _____

a. Ampere rule

b. Fleming's left hand rule

c. **Fleming's right hand rule**

d. Thumb rule

51. When a current carrying conductor is placed in a strong magnetic field, the direction of force is determined by _____

a. Fleming's left hand rule b. Faraday's law

c. Fleming's right hand rule d. Right hand thumb rule

52. Fleming's right hand rule is also known as _____

a. motor rule b. cork screw rule

c. thumb rule d. **generator rule**

53. In Fleming's right hand rule, the thumb represents_____

a. direction of magnetic field

b. direction of induced current

c. direction of force

d. **motion of conductor**

54. The middle finger in the Fleming's right hand rule represents _____

a. direction of induced current

b. direction of magnetic field

c. direction of force

d. motion of conductor

55. Which phenomenon is used to produce large currents?

a. Magnetic induction b. Electrostatic induction

c. Electromagnetic induction d. Friction

56. Generator is used to convert_____

a. mechanical into electrical energy

b. electrical into mechanical energy

c. electrical into sound energy

d. sound into electrical energy

57. AC generator works on the principle of _____

a. photo electric effect b. mechanical effect of current

c. electrostatic induction **d. electromagnetic induction**

58. In an Ac generator, the direction of the induced emf at any instant is given by _____

a**. Fleming's right hand rule** b. Fleming's left hand rule

c. Right hand thumb rule d. Cork screw rule

59. The field magnet used in AC generator is _____

a. an electromagnet b. horse shoe magnet

c. bar magnet **d. powerful permanent magnet**

60. In generator, the armature is rotated about its axis_____

a. parallel to the magnetic field

b. parallel to the direction of induced emf

c. perpendicular to the direction of magnetic field

d. perpendicular to the direction of induced emf

61. The two ends of the coil in AC generator is connected to _____

a. brushes b**. slip rings**

c. split rings d. axle

62. When the coil is rotated about an axis perpendicular to the direction of magnetic field in AC generator, there is a continuous change in the _____

a. induced current b. induced emf

c. magnetic pole strength **d. magnetic flux**

63. In generator, the change in the magnetic flux linked with the coil induces_____

a. charges b. current

c. **an emf** d. electric field

64. The direction of induced current at any instant in generator is given by _____

a. cork screw rule b. ampere's rule

c**. Fleming's right hand rule** d. Fleming's left hand rule

65. In AC generator, the emf varies for every_____

a. full rotation of the coil

b**. half rotation of the coil**

c. one fourth rotation of the coil

d. three fourth rotation of the coil

66. A current which changes direction after equal intervals of time is _____

a. direct current b. eddy current

c. **alternating current** d. steady current

67. The principle used in DC generator is _____

a. mechanical effect of current

b. electromagnetic induction

c. electrostatic induction

d. Ampere's law

68. DC generator is used to generate _____

a. steady current b. eddy current

c. **unidirectional current** d. alternating current

69. The ends of the coil in DC generator is connected to _____

a**. split rings** b. slip rings

c. brushes d. axle

70. The rectangular coil of many turns wound on a soft iron core is called _____

a. split rings b. carbon brushes

c. **armature** d. slip rings

71. The split rings in a DC generator is used to _____

a. increase the current b. decrease the current

c. **reverse the current** d. invert the current

72. Which part is used to convert AC into DC?

a. slip rings b. carbon brushes

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c. coil d**. split rings**

73. The induced current from the generator is passed to the external circuit through _____

a. split rings b. armature

c. commutator d**. carbon brushes**

74. In an AC generator, the emf obtained can be increased by _____

a. increasing the numbers of turns of the coil

b. increase the speed of rotation of the coil

c. using a strong field magnet

d. **all the above**

75. Alternating current changes its direction _____

a. uniformly b. **periodically**

c. instantaneously d. spontaneous

76. Mirrors having a spherical surface of reflection are _____

a. plane mirrors b. lenses

c. **spherical mirrors** d. prism

77. A spherical mirror, which has reflecting curved inward surface is _____

a. **concave mirror** b. convex

c. Plano concave d. Plano convex

78. The mirror that diverges the light rays is _____

a. **concave** b. convex

c. plane d. none

79. The centre of the sphere, of which a spherical mirror is a part is called _____

a. pole b. radius of curvature

c. focus d. **centre of curvature**

80. The centre of the reflecting surface of a spherical mirror is _____

a. centre of curvature b. focus

c**. pole** d. radius of curvature

81. The point at which the rays are converged or diverged by a mirror is _____

a. pole b. **principal focus**

c. principal axis d. centre of curvature

82. The radius of curvature of the spherical mirror is equal to _____

a. focal length b. **twice the focal length**

c. thrice the focal length d. half of the focal length

83. Which mirror is called converging mirror?

a. plane b. convex

c. **concave** d. plane concave

84. A virtual and equal sized image is formed by _____

a. concave mirror b. convex mirror

c. **plane mirror** d. none

85. To form a real image, the mirror required is _____

a. **concave** b. convex

c. plane d. none

86. A virtual and enlarged image is formed by _____

a. convex mirror **b. concave mirror**

c. plane mirror d. both concave and convex mirror

87. I. A real image is always inverted

II. A virtual image is always erect

a. only I is true b. only II is true

c**. both I and II are true** d. neither is true

88. To form a virtual image, we use_____

a. only convex mirror

b. only concave mirror

c. either convex or concave mirror

d. plane mirror

89. According to _____ of light, angle of incidence is equal to angle of reflection.

a. refraction b. dispersion

c. reflection d. total internal reflection

90. A coin at the bottom of a bucket filled with water is appeared to be raised due to _____

a. dispersion b. reflection

c. diffraction **d. refraction**

91. To obtain magnified, erect image in a concave mirror, object should be held_____

a. at pole (P) b. at focus(F)

c. beyond 2F **d. between O and (F)**

92. An object is placed at focus of a concave mirror, image is formed at _____

a**. infinity** b. behind the mirror

c. focus d. centre of curvature

93. The image formed by a concave mirror is real, inverted and of same size as that of the object. The position of the object is _____

a. at F b. **at C**

c. between F and 2F d. beyond 2F

94. An object is placed between F and 2F of a concave mirror, image will be formed _____

a. at infinity b. beyond F

c. beyond 2F d. between F and O

95. To obtain same, real and inverted image in concave mirror object should be placed _____

a. at F b. **at 2F**

c. beyond 2F d. between F and optical centre

96. When an object is placed between F and optical centre O in concave mirror the image formed will be _____

a. real-inverted and diminished

b. virtual- inverted and diminished

c. **virtual-erect and diminished**

d. virtual-erect and enlarged

97. The mirror is used _____

a. to get powerful parallel beam of light

b. to obtain a magnified images

c. **to produce heat**

d. all the above

98. Concave mirror is used_____

a. to get powerful parallel beam of light

b. to obtain magnified images

c. to produce heat

d. **all the above**

99. Which mirror is used in solar furnaces?

a. concave b. convex

c. plane d**.** none

100. The image formed by a spherical is virtual, erect and smaller in size, whatever be the position of the object, the mirror is _____

a. concave b. **convex**

c. plane d. both convex and concave

101. When an object is placed at the principal focus of the convex lens the image formed is _____

a. enlarged b. diminished

c. **highly enlarged** d. highly diminished

102. In automobiles, the mirror used to see the rear view is _____

a. concave b. plane

c. **convex** d. parabolic mirror

103. Convex mirrors are preferred because_____

a. it gives powerful parallel beams

b. it concentrates the light

c. always give an erect image

d. it gives real inverted image

104. Which mirror is used by ENT specialists and dentists?

a. concave mirror b. plane

c. convex d. parabolic

105. Which mirror is used as shaving mirror?

a. plane b. **concave**

c. convex d. parabolic

106. The mirror used by a dental surgeon is _____

a. plane b. convex

c. **concave** d. both concave and convex

107. All the distances measured to the right of the origin is taken as _____

a. **positive** b. negative

c. either positive or negative d. none

108. The distance of the image is from the pole of the mirror is called _____

a. focal length b. **image distance**

c. object distance d. principal axis

109. The distance of the principal focus from the pole is called _____

a. focal length b. image distance

c. **object distance** d. principal axis

110. Object distance is the distance between _____

a. pole and the image **b. pole and the object**

c. principal focus and the pole d. none of the above

111. In case of spherical mirrors, the mirror formula is _____

a. $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ b. $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$

c. $\frac{1}{u} = \frac{1}{v} + \frac{1}{f}$ d. $\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$

112. For a concave mirror, value of v is positive, if image formed is _____

a. **virtual** b. real

c. diminished d. magnified

113. Which mirror has a negative focal length?

a. Plane b. **Concave**

c. Convex d. All the above

114. Which mirror has a negative value of v and forms a real image?

a. Plane b. Convex

c. **Concave** d. None

115. For a convex mirror, the image distance is always _____

a**. positive** b. negative

c. small d. large

116.The distance of the image of an object in spherical mirror is measured from the_____

a. focus b. centre of curvature

c. **pole** d. infinity

117. Which of the following represent the unit of magnification?

a. dioptere b. metre

c. decimetre d. **no unit**

118. Refraction takes place through _____

a. opaque b. **transparent**

c. metals d. none

119. Magnification of a concave mirror is _____

a. less than one b. more than one

c. **more or less than one** d. infinity

120. A convex mirror has a magnification which is always _____

a. equal to one **b. less than one**

c. more than one d. infinity

121. When a ray of light travels from water to glass, it bends_____

a. towards normal

b. away from normal

c. neither towards nor away from normal

d. along the normal

122. Light travels fastest in _____

a. **vacuum** b. air

c. glass d. diamond

123. No refraction occurs when a ray goes from _____

a. rarer to denser medium

b. denser to rarer medium

c. one medium to other medium of same optical density

d. none

124. The angle between the normal and the refracted ray is called_____

a. angle of reflection b. angle of refraction

c. angle of incidence d. angle of deviation

125. The second law of refraction is stated by _____

a. C.V.Raman b. Newton

c**. Snell** d. Gallile

126. Snell's law of refraction states_____

a. $\boldsymbol{\mu = \frac{\sin i}{\sin r}}$ b. $\mu = \frac{\sin r}{\sin i}$

c. sin i=μ d. $\mu = \frac{1}{\sin r}$

127. The velocity of light in air is _____

a. 1.8×10^8m/s **b. 3×10^8 m/s**

c. 2.25×10^8m/s d. 3×10^6m/s

128. Value of refractive index does not depend on _____

a. angle of incidence b. substance of medium

c**. temperature** d. speed of light in medium

129. An imaginary straight line passing through the two centres of curvature of a lens is _____

a. focal length b. radius of curvature

c. aperture d**. principal axis**

130. The effective diameter of length of a lens from whose refraction takes place is called _____

a. focus b. centre of curvature

c. a**perture** d. optic centre

131. In case of thin lenses, radius of curvature is _____

a**. greater than aperture**

b. lesser than aperture

c. equal to aperture

d. very much lesser than aperture

132. The central point of a lens is called _____

a. centre of curvature b. **optical centre**

c. principal focus d. aperture

133. Optic centre is _____

a. necessarily at the centre of lens

b. necessarily inside the lens

c**. necessarily on principal axis**

d. can be anywhere

134. The light rays passing through the optic centre will_____

a. converge b. diverge

c. reflect **d. emerge undeviated**

135. A ray passing through the focus of the less will _____

a. converge ` b. diverge

c. emerges parallel to the principal axis d. none

136. An object is placed away from 2F of a convex lens, image is formed _____

a. at F **b. between F and 2F**

c. at F d. at infinity

137.Virtual, erect and enlarged image is produced by convex lens when the object is placed _____

a. beyond 2F b. between F and 2F

c. at F d**. between F and optic centre(O)**

138. If the object at 2F in case of a convex lens, image is necessarily at _____

a. F b. **2F**

c. infinity d. O

139. The image formed by a convex lens, when the object is placed between F and 2F is _____

a. real-inverted and diminished

b. real-inverted and of same size

c. **real- inverted and enlarged**

d. virtual- erect and enlarged

140. A convex lens does not produce _____

a. **virtual diminished image** b. virtual enlarged image

c. real magnified image d. real diminished image

141. For a convex lens, as the object distance(u) increases, the image distance(v)_____

a. remains constant b. increases

c**. decreases** d. is infinity

142. Which lens is used as a magnifying glass?

a. convex b. concave

c. biconcave d. Plano concave

143. A concave lens is a_____

a. **diverging lens** b. converging lens

c. magnifying lens d. plane lens

144. The image formed by concave lens is always_____

a. real-inverted and diminished
b. real-inverted and of same size
c. real- erect and enlarged
d. **virtual-erect and diminished**

145. Which statement is correct about a concave lens_____

a. object distance (u) is negative

b. focal length is negative

c. image distance(v) is negative

d. **all the above**

146. The lens formula is _____

a. $\frac{1}{v} + \frac{1}{u} = -\frac{1}{f}$
b. $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$
c. $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$
d. $\frac{1}{v} - \frac{1}{f} = -\frac{1}{u}$

147. The reciprocal of focal length of a lens is _____

a. principal focus
b. **power**
c. magnification
d. image distance

148. The SI unit of power of lens is _____

a. metre
b. decimetre
c**. dioptre**
d. no unit

149. The focal length of lens is 1 metre, then its power is _____

a. **1 dioptre**
b. 1 metre
c. 1 decimetre
d. 1

150. Image of real object formed by concave lens is _____

a. always real b. **always virtual**

c. sometimes real d. sometimes virtual

151. Various colours in a rainbow is due to _____

a. reflection b. refraction

c. deviation d. **dispersion**

152. A prism is a transparent medium bounded by two _____

a. **non-parallel plane surfaces**

b. parallel plane surfaces

c. spherical surfaces

d. concave surfaces

153. Dispersion takes place due to _____

a. different speed of different colours of light

b. all colours of light travel with same speed

c. reflection by the prism

d. transparent medium

154. Spectrum is the band of distinct _____

a. 7 colours b. 9 colours

c. 5 colours d. 8 colours

155. Twinkling of stars is due to _____

a. reflection b. dispersion

c**. atmospheric refraction** d. none of the above

156. White light is made up of _____

a. s**even colours** b. six colours

c. all colours d. no colour

157. Light enters the eye through _____

a. pupil b. iris

c. **cornea** d. retina

158. In a human eye, the image is formed at _____

a. pupil b. iris

c. cornea d**. retina**

159. The amount of light entering the eye is adjusted by _____

a**. pupil** b. iris

c. cornea d. retina

160. The size of pupil of the eye is adjusted by _____

a. cornea **b. iris**

c. retina d. ciliary muscles

161. Eye lens is a _____

a. **double convex lens** b. double concave

c. Plano convex lens d. Plano concave lens

162. The eye lens forms an image on the retina is_____

a. inverted – real image

b. erect- real image

c. virtual erect image

d. virtual-inverted image

163. A person can see an object, when its image is formed _____

a. **in front of retina** b. in front of cornea

c. away from retina d. on the retina

164. The least distance of distinct vision is _____

a. **25 cm** b. 35cm

c. 20 cm d. infinity

165. Focal length of eye lens increases permanently or contraction of the eye ball results in _____

a. myopia b. presbyopia

c. hypermetropia d. astigmatism

166. A convex lens is used to rectify ___

a. myopia b. presbyopia

c. hypermetropia d. astigmatism

167. Ageing results in _____

a. myopia **b. presbyopia**

c. hypermetropia d. astigmatism

168. Elongation of the eye ball results_____

a. **myopia** b. presbyopia

c. hypermetropia d. astigmatism

169. Which lens is used to rectify myopia?

a. convex b**. concave**

c. bifocal d. cylindrical

170. Myopia is also known as_____

a**. near sightedness** b. far sightedness

c. refractive defects d. none

171. An old person cannot see nearby and distant objects can use ____

a. convex b. concave

c. cylindrical **d. bifocal**

172. Presbypia arises due to ____

a. contraction of eye ball

b. elongation of eye ball

c. **diminishing flexibility of eye ball**

d. none of the above

173. The person cannot donate eyes, who is suffering from _____

a. asthma b. diabetes

c. hypertension **d. leukaemia**

174. Focal length of the eye lens is _____

a. fixed b. **variable**

c. either fixed or variable d. neither fixed nor variable

175. Variable focal length of eye lens is responsible for _____

a**. accommodation of eye**

b. colour blindness

c. persistence of vision

d. least distance of distinct vision

176. When we go out in the bright sunlight, the pupil of the eye_____

a. **contracts** b. expands

c. sometimes expands d. neither contracts nor expands

177. Which telescope was carried by a space shuttle?

a. astronomical b**. Hubble**

c. terrestrial d. none

178. Hubble's telescope is used _____

a. to measure the expansion of universe b. to find block holes

c. to observe distant supernova d**. all the above**

179. The radius of curvature of a concave mirror is -10 cm. its focal length is ___

a. 20 cm b. **-5 cm**

c. 5 cm d. 10 cm

180. Concave mirror produces 10 cm long image of an object of height 2 cm. The magnification is _____

a. **5** b. 20

c. 10 d. 2

181. Which of the following controls the pupil of the human eye?

a. cornea b. citrary muscles

c. **Iris** d. Retina

182. A device which converts electrical energy into mechanical energy is _____

a. Generator **b. Motor**

c. Transformer d. Power supply

183. The defect myopia can be corrected by using a _____

a. convex lens b. **concave lens**

c. concave mirror d. convex mirror

184. The defect hypermetropia can be corrected by using a _____

a. **convex lens** b. concave lens

c. concave mirror d. convex mirror

185. The amount of induced e.m.f when the magnetic field linked with the coil changes is _____

a. **magnetic induction** b. current produced

c. e.m.f produced d. changing current

186. _____ discovered electromagnetic induction.

a. Oersted b. Faraday

c. Edison d. Newton

187. The type of mirror used in Hubble space telescope is _____

a**. Hyperbolic mirror** b. Concave mirror

c. Convex mirror d. Plane mirror

II. Match the following

1.

1. Convex mirror	a. Concave lens
2. Radius of curvature of a spherical mirror	b. Metre
c. Focal length	c. Reflecting surface is curved outward
4. Myopia	d. 2 x focal length

Ans: 1-c,2-d,3-b,4-a

2.

1. Refractive index	a. $\frac{image\ distance}{object\ distance}$
2. Power of a lens	b. Convex lens
3. Hypermetropia	c. Dioptre
4. Magnification	d. $\frac{speed\ of\ light\ in\ air}{speed\ of\ light\ in\ medium}$

Ans: 1-d,2-c,3-b,4-a

3.

1. Beyond 2F	a. Infinitely large
2. At 2F	b. Enlarged

3. At principal focus F	c. Same size
4. Between F and 2F	d. Diminished

Ans: 1-d,2-c,3-b,4-a

4.

1. The focal length of a spherical mirror	a. Convex mirror
2. Rainbow	b. Atmospheric refraction
3. Rear view mirror	c. $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$
4. Twinkling of stars	d. Dispersion

Ans: 1-c,2-d,3-a,4-b

5.

1. Reciprocal of focal length	a. Metre
2. Search light and vehicles	b. Telescope
3. Focal length	c. Power of a lens
4. Supernovae	d. Convex lens

Ans: 1-c,2-d,3-a,4-b

6.

1. Iris	b. Sending signal to the brain
2. Optic nerves	b. A delicate membrane
3. Retina	c. Controls the amount of light entering
4. Pupil	d. A dark muscular diaphragm

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Ans: 1-d,2-a,3-b,4-c

7.

1. Concave mirror	a. Dispersion
2. Refraction	b. Virtual and erect image
3. Concave lens	c. Snell's law
4. Prism	d. To produce heat in solar furnace

Ans: 1-d,3-c,3-b,4-a

8.

1. Electric motor	a. Converts mechanical energy into electrical energy
2. Electric generator	b. Generate electrical signal when illuminated
3. Height sensitive cells	c. Black holes
4. Hubble's observations	d. Converts electrical energy into mechanical energy

Ans: 1-d,2-a,3-b,4-c

III. Fill in the blanks

1. Magnetic field has both _____ and _____

Ans: magnitude, direction

2. Inside a magnet, the direction of magnetic field lines is from its _____ pole to its_____ pole.

Ans: south, north

3. The _____ of magnetic field produced by the electric current depends upon the direction of flow of _____

Ans: direction, current

4. The magnetic field produced by a current carrying conductor, depends _____ on the _____ from it.

Ans: inversely, distance

5. A current carrying conductor generates _____ around it.

Ans: magnetic field

6. The direction of force on the conductor depends upon the direction of _____ and the direction of _____

Ans: current, magnetic field

7. In Fleming's left hand rule, fore finger points in the direction of _____ and thumb points in the direction of _____ acting on the conductor.

Ans: an electromagnet, a soft iron core

8. Fleming's left hand rule, is applied to find the direction of _____ on a current carrying conductor placed in a _____

Ans: rotating device, commutator

9. Commercial motors use _____ and _____

Ans: Fleming's right hand rule

10. An electric motor is a _____ and split acts as a _____

Ans: induced current, magnetic field

11. The direction of induced current can be found by_____

Ans: Fleming's right hand rule

12. In Fleming's right hand rule, middle finger shows the direction of _____ and fore finger represents the direction of _____

Ans: induced current, magnetic field

13.In an electric motor _____ enhances the power and _____ reverses the direction of current.

Ans: soft iron core, split ring

14.For spherical mirrors of small apertures, the _____ is equal to _____ the focal length.

Ans: radius of curvature, twice

15. Concave mirrors are used in _____ and _____

Ans: torches, search lights

16. Small concave mirrors are used in _____ and large concave mirrors are used in _____

Ans: vehicles, solar furnaces

17. A virtual and erect image is formed when an object is placed at _____ and between infinity and _____ of the convex mirror.

Ans: infinity, optical entre

18. The unit of power is _____ and the unit of focal length is _____

Ans: dioptre, metre

19. The light sensitive cells in the retina generates _____ and they are sent to the brain via the _____

Ans: electric signal, optic nerves

20. Myopia is corrected by _____ and hypermetropia is corrected by _____ or _____

Ans: concave lens, connerging lens or convex lens

21. A common type of by-focal lenses consists of both_____ and _____ lenses.

Ans: concave lens, convex

22. When current flows in a wire, it creates _____, _____

Ans: a magnetic field around it, perpendicular in direction

23. _____ energy is converted into _____ energy by an electric generator.

Ans: mechanical, electrical

24. The direction of the induced current is obtained by _____

Ans: Fleming's right hand rule

25. The direction of force on the conductors in Flemings left hand rule is represented by _____ and middle finger represents _____

Ans: Thumb, current

26. Electric motor converts _____ energy into _____

Ans: electrical, mechanical

27. The phenomenon of electromagnetic induction is to produce _____ whenever there is a change in _____

Ans: induced emf, magnetic flux

28. DC generator produces _____ current whereas AC generator produces_____

Ans: unidirectional, alternating

29. A spherical mirror whose reflecting surfaces is curved inwards is called _____ and if the reflecting surface is curves outwards then it is _____

Ans: concave, convex

30. The straight line passing through the _____ and the _____ of a spherical mirror is called principle axis.

Ans: pole, centre of curvature

31. The distance between them _____ and the _____ of a spherical mirror is called the focal length.

Ans: pole, principal focus

32. Concave mirrors are used in _____, _____ and vehicles head lights to get powerful parallel beams of light.

Ans: Torch light, search lights

33. Mirror that converges light: _____

Mirror which diverges: _____

Ans: concave mirror, convex mirror

34. The centre of the mirror : _____ then for the centre of the sphere which a mirror is a part: _____

Ans: pole, centre of curvature

35. In a convex mirror V is always: _____then for concave lens: _____

Ans: positive, negative

36. Magnification of a mirror: _____ then for lens: _____

Ans: $\frac{-v}{u}, \frac{v}{u}$

37. Shaving mirror : _____, then rear view mirror : _____

Ans: concave, convex

38. Twinkling stars: _____ , then Rainbow : _____

Ans: refraction of light, Dispersion of light

39. For _____ lens, V is always negative then for _____ lens: v is positive.

Ans: concave, convex

40. For spherical mirror: $\frac{1}{f}$ = _____ , then for lenses: $\frac{1}{f}$ = _____

Ans: $\frac{1}{v}+\frac{1}{u}$, $\frac{1}{v}-\frac{1}{u}$

41. The unit of focal length: _____then for power: _____

Ans: metre, dioptre

42. A convex lens is used for rectification of: _____, then concave lens:_____

Ans: long sightedness, short sightedness

43. A _____ mirror and _____ lens always form virtual and diminished image.

Ans: convex, concave

44. For a concave mirror, value of v is positive if the image formed is _____ and for negative value of v the image formed is _____

Ans: virtual, real

45. A_____ mirror or _____ lens has a negative focal length.

Ans: convex, concave

46. Convex lens forms an erect and enlarged image, when object is placed between _____ and _____

Ans: focus, optic centre

47. A beam of light bends towards the normal when it passes from _____ medium to _____ medium.

Ans: denser, rarer

48. The ratio of the size of _____ to size of _____ is called refractive index of the medium.

Ans: angle of incidence, angle of refraction

49. When the light is very bright, pupil becomes _____ and when the light is dim, it becomes_____ in size.

Ans: smaller, larger

50. Iris controls the size of the _____ and pupil controls the _____ entering into the eye.

Ans: pupil, amount of light

51. Excessive curvature of cornea results in _____ but when eyeball becomes shorter than normal, person suffers from _____

Ans: myopia, hypermetropia

52. _____ lens is present in human eye and the image is formed at _____

Ans: convex lens, retina

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