

11th 12th Science Notes Questions**[TnpSC Syllabus Portion]****Biology In Human Welfare****1. Food Production****I. Choose and write the correct option for the following questions**

1. Which pathogen causes the blast disease of rice?

- (a) *Cercospora personata* **(b) *Pyricularia oryzae***
(c) *Xanthomonas citri* (d) Tungro virus

Explanation

Disease incited by a fungus, *Pyricularia oryzae*. The fungus *Pyricularia oryzae* when young possesses hyaline and septate mycelium. On maturity, the colour of mycelium changes to olive brown. Conidia are produced terminally. Each conidium is obpyriform septate with a small basal appendage.

2. What is the collateral host plant of *Pyricularia oryzae*?

- (a) *Oryza sativa* **(b) *Digitaria marginata***
(c) *Arachis hypogea* (d) Citrus plant

Explanation

The secondary host plants such as *Digitaria marginata* should be collected from paddy fields and destroyed.

3. Which pathogen causes Tikka disease of groundnut?

- (a) *Cercospora personata*** (b) *Pyricularia oryzae*
(c) *Xanthomonas citri* (d) Tungro virus

Explanation

Tikka disease of groundnut Pathogen Disease incited by a fungus *Cercospora personata*. The fungus belongs to class Deuteromycetes.

4. _____ and other related organizations in our country are trying to increase food production

- (a) ICAR** (b) ISR (c) ISI (d) Agricultural marketing

Explanation

Efforts are being made by ICAR – Indian Council of Agricultural Research and other related organizations in our country to increase food production.

5. One of the important strains distributed to the cultivation is _____

(a) **Oryza sativa Co. 15** (b) Triticale (c) Phaseolus (d) Triticum

Explanation

A single species is a group of assemblage of innumerable number of genetic types such as lines, strains, etc. The strains are tested in various climatic conditions, successful ones are named, multiplied and distributed as a variety or cultivar eg. Oryza sativa Co.15, ADT.

6. The improvement in the genetic make up of plants is _____

(a) **Plant breeding** (b) Genetic engineering
(c) Protoplasmic fusion (d) All the above

Explanation

By introducing specialized technology, plant breeders are now able to develop more crops, which they multiply and supply them to the growers. Improvement in the genetic make up of plants is called plant breeding.

7. Auto and allopolyploid breeding can be improved by _____

(a) Protoplasmic fusion (b) Genetic engineering
(c) **Plant breeding** (d) Cross pollination

Explanation

By employing certain plant breeding techniques, new varieties are developed. eg. maize, sorghum, cotton and sunflower. Auto and Allopolyploid breeding are also improved.

8. Fortified rice – iron rich rice and _____ can be improved by genetic engineering.

(a) Wheat (b) Carotene rich carrot
(c) **Carotene rich rice** (d) All the above

Explanation

Improvement of nutritional quality by genetic engineering (eg. Fortified rice - iron rich rice and carotene rich rice).

9. _____ is a wild variety of rice.

- (a) Fortified rice (b) Carotene rich rice
- (c) **Salinity tolerant rice** (d) Iron – rich rice

Explanation

Through gene manipulation, the gene for salinity tolerance could be cloned in a rice variety. In such of those areas where shortage of fresh water exists, rice can be cultivated using seawater and can even be grown in extreme saline soil.

10. _____ is a method of eliminating undesirable ones.

- (a) Selection (b) Heterosis (c) Clonal selection (d) Polyploidy

Explanation

Selection is one of the oldest procedures in which individual plants or group of plants are sorted out from mixed population, thus eliminating undesirable ones.

11. A hybrid produced from fusion of protoplasts of two different species is _____

- (a) Heterosis **(b) Somatic hybridization**
(c) Polyploid breeding (d) germinal hybridization

Explanation

A hybrid produced from fusion of protoplasts of two different species is called somatic hybridization.

12. _____ is the method in which plants are selected based on their desirable morphological characters.

- (a) Pureline selection **(b) Mass selection**
- (c) Hybridization (d) Somatic hybridization

Explanation

In Mass selection method, plants are selected based on their desirable morphological characters (phenotype). Their seeds are composite or mixed and the progenies are grown in masses.

13. In mass selection method the progenies are grown in _____

- (a) Single (b) Double **(c) Masses** (d) Colonies

Explanation

In this method, plants are selected based on their desirable morphological characters (phenotype). Their seeds are composite or mixed and the progenies are grown in masses.

14. _____ is a collection of plants obtained as a result of repeated self – pollination from a single homozygous individual.

(a) **Pure line selection** (b) Mass selection
(c) Gene manipulation (d) Cross pollination

Explanation

A pure line is a collection of plants obtained as a result of repeated self-pollination from a single homozygous individual. Hence, a variety formed by this method shows more homozygosity with respect to all genes.

15. New genotypes are never created by _____ method.

(a) Mass selection (b) **Pureline selection**
(c) Both (a) and (b) (d) None of the above

Explanation

One disadvantage is that new genotypes are never created by this method. Genetic variability is essential for adaptations in different environmental and seasonal conditions.

16. In clonal selection, selected plants are multiplied through _____ to give rise to a clone.

(a) Asexual reproduction (b) Sexual reproduction
(c) Conjugation (d) **Vegetative propagation**

Explanation

In clonal selection, Selected plants are multiplied through vegetative propagation to give rise to a clone. The genotype of a clone remains unchanged for a long period of time.

17. The genotype of a clone remains unchanged for a _____

(a) Short time (b) **Long period of time** (c) Year (d) Very short period of time

Explanation

In clonal selection, the genotype of a clone remains unchanged for a long period of time.

18. New varieties of mung crops were developed by selecting variant plant by subjecting to crosses called _____

(a) Inter specific crosses (b) Intra specific cross
(c) **Inter or intra specific crosses** (d) Hybrid crosses

Explanation

From amongst the introduced mung crop, a plant suddenly produced large and bright coloured seeds. This aspect may be due to sudden mutation. This variant plant was selected and further subjected to inter or intra specific crosses with our native crop.

19. _____ are the products of first generation obtained by crossing genetically unrelated plants.

- (a) Homozygous individuals (b) Pure breeding variety
(c) Hybrids **(d) heterozygous individuals**

Explanation

Heterozygous individuals are the products of first generation obtained by crossing genetically unrelated plants.

20. When two individuals of the same species are crossed, it is called _____

- (a) Inter breeding (b) Intra breeding (c) Out breeding **(d) In breeding**

Explanation

When two individuals of the same species are crossed, it is called inbreeding or selfing or self-pollination.

21. _____ results in this increase of homozygosity.

- (a) Cross pollination (b) Emasculation **(c) Inbreeding** (d) Heterosis

Explanation

When two individuals of the same species are crossed, it is called inbreeding or selfing or self-pollination. This results in the increase of homozygosity. Particularly homozygous recessive alleles develop loss of vigor in plants.

22. _____ alleles develop loss of vigour in plants.

- (a) Homozygous dominant alleles **(b) Homozygous recessive alleles**
(c) Heterozygous dominant alleles (d) heterozygous recessive alleles

Explanation

Particularly homozygous recessive alleles develop loss of vigor in plants. By careful observation of morphological features, we can remove these deleterious and harmful alleles by selection.

23. _____ crops are asexually propagated produce very poor seeds.

(a) Sugarcane, potato

(b) Mung and Triticum

(c) Mung and Tea

(d) Rice and Wheat

Explanation

Crops like sugarcane, potato, tea, banana and certain species of grasses are asexually propagated and produce very poor seeds.

24. In heterosis the increase in yield of F₁ hybrids of maize shows _____

(a) 35%

(b) 30%

(c) 25%

(d) 20%

Explanation

F₁ hybrids of maize show 25% increase in yield when compared to their own parent crop.

25. The protoplasts of the cell are obtained through dissolution of their cell wall by _____ enzyme.

(a) Cellulase and zymase

(b) Pectinase and zymase

(c) Carboxylase and zymase

(d) Cellulase and pectinase

Explanation

A hybrid produced from fusion of protoplasts of two different species is called somatic hybridization. Naked protoplasts are obtained through dissolution of their cell walls by the macerating enzymes such as pectinase and cellulase.

26. Fusion of protoplasts from two different varieties can be enhanced by the chemical substance _____

(a) Poly ethylene glycol

(b) Poly vinyl chloride

(c) Phenoxy acetic acid

(d) Gibberellin

Explanation

Fusion of protoplasts from two different varieties can be enhanced by treatment with the chemical called polyethylene glycol (PEG) in the presence of high voltage electric current on a suitable medium.

27. The superiority of F₁ hybrid in performance over its parents is called _____

(a) Heterosis

(b) Hybrid vigour

(c) Polyploid

(d) Both a and b

Explanation

The superiority of the F1 hybrid in performance over its parents is called heterosis or hybrid vigour. Vigour refers to increase in growth, yield, resistance to diseases, pests and drought.

28. The organism in which number of sets of chromosome is doubled is _____

(a) Haploid (b) Diploid (c) Triploid **(d) Polyploidy**

Explanation

A diploid plant has two sets of chromosomes but any organism in which the number of sets of chromosome is doubled is called a polyploid.

29. The condition in which increase in vigour and fruit size, root size, leaves size have resulted is _____

(a) Monoploid (b) Diploid **(c) Triploid** (d) Tetraploid

Explanation

Three sets of chromosomes i.e. a triploid condition in sugar beats, apples and pear has resulted in the increase in vigour and fruit size, large root size, large leaves, flower, more seeds and sugar content in them. Seedless tomato, apple, watermelon and orange are autopolyploids.

30. Seedless apple, tomato and water melon are produced by _____

(a) Aneuploidy (b) Polyploidy (c) Triploidy **(d) Autopolyploidy**

Explanation

Seedless tomato, apple, watermelon and orange are autopolyploids.

31. In polyploidy _____ is used to double the chromosome number.

(a) Auxin (b) Gibberellin (c) Ethylene **(d) Colchicine**

Explanation

Polyploidy can be induced by the use of colchicine to double the chromosome number.

32. Triticum x Secale gives Triticale is an example of _____

(a) Triploid **(b) Allopolyploidy** (c) Auto tetraploidy (d) All the above

Explanation

Allopolyploids are produced by multiplication of chromosome sets that are initially derived from two different species. eg. Triticum × Secale gives Triticale.

33. Haploid plants can be modified to diploid by doubling their chromosomes through _____

(a) **Anther and ovary culture**

(b) Polyploid

(c) Mutation

(d) Hybridization

Explanation

The haploid individual plant will have only one set of chromosome. Through the technique of **anther and ovary culture**, haploid plants can be modified to diploid ones by doubling their chromosomes.

32. Varieties of short duration sugarcane are produced by _____

(a) Tetraploidy

(b) Triploidy

(c) **Polyploidy**

(d) Diploidy

Explanation

Variations that are brought forth through plant tissue culture are called somoclonal variation. eg. disease resistant potato and rust resistant wheat. Varieties of short duration sugarcane are produced by polyploid breeding.

33. These are the products of induced mutation _____

(a) Tetraploid cabbages and apples

(b) Tetraploid corn and pear

(c) **Atomita 2-rice and groundnuts**

(d) Triploid apples pear

Explanation

Atomita 2-rice with saline tolerance and pest resistance, groundnuts with thick shells are products of breeding methods through induced mutation.

34. Caesium, ethyl methane sulphonate and nitro methyl urea are the _____

(a) Physical mutagens

(b) **Chemical mutagens**

(c) Biological mutation

(d) Radioactive isotopes

Explanation

Radiation induces mutation to develop new variety of crops. Now with newer and more powerful sources of radiations (UV shortwave, X-ray, Alpha, Beta, Gamma waves) and many chemicals (mutagens) eg. Caesium, ethyl methane sulfonate, nitromethyl urea)

35. Disease free plants are obtained by the culture called _____

(a) Apical meristem

(b) intercalary meristem

(c) **Shoot apical meristem**

(d) Root apical meristem

Explanation

Disease free plants are obtained by shoot apical meristem culture technique. Plants raised through tissue culture are free from pathogens, which are widely cultivated.

36. The best way to transfer the trait to other useful crop is _____

- (a) Test cross (b) Di-hybrid cross **(c) Back cross** (d) Monohybrid cross

Explanation

Whenever, a trait that shows disease resistance in a plant is observed, the best way to transfer that trait to other useful crop is by the method of backcross.

37. Parent crop with repeated back crosses is known as _____

- (a) Homozygous parent (b) Heterozygous parent
(c) Recurrent parent (d) Pure breeding parent

Explanation

Repeated back crosses are attempted with the parent crop with more desirable characters and such a crop is known as recurrent parent.

38. _____ is a widely employed as a tool in modern crop improvements.

- (a) Protoplasmic fusion (b) Tissue culture
(c) Genetic engineering (d) Hybridization

Explanation

Genetic engineering will enable the plant or animal breeder to select the particular gene from one plant and then place the same gene into another plant for it to express its desired character. Today, genetic engineering is widely employed as a tool in modern crop improvements.

39. _____ is a vector in genetic engineering.

- (a) Bacterial plasmid and bacteria (b) Bacteriophage and plasmid
(c) Virus and bacteria **(d) Bacterial plasmid and Virus**

Explanation

The foreign genes are generally incorporated into a host organism either through a bacterial plasmid or a virus, which acts as vectors (vehicular traffic).

40. Addition of genes or DNA from one plant or a microbe to another plant is called _____

- (a) Transfusion (b) Transduction (c) **Transgenic plant** (d) Addition

Explanation

Addition of genes or DNA (foreign genes) from one plant or a microbe to another plant is called transgenic plant.

41. _____ is a recently formed transgenic higher plant using genetic engineering.

- (a) Nicotiana, banana (b) Banana, apple
(c) **Nicotiana and potato** (d) Tobacco and mango

Explanation

Herbicide resistance, saline resistance, altered flower colour, improved protein quality and protection against viral infection are few examples of recently formed transgenic higher plants by using this technology eg. tobacco, tomato, potato, sunflower and apple.

42. Inorder to release a new created variety it takes nearly _____

- (a) 10 years (b) **12 years** (c) 14years (d) 8years

Explanation

In order to release a newly created variety it takes nearly 12 years involving extensive field trials, naming and multiplication.

43. To maintain soil fertility and soil improvement _____ have been developed.

- (a) Herbicide (b) Pesticide (c) Insecticide (d) **Bio fertilizer**

Explanation

To maintain soil fertility and soil improvement, fertilizers of biological origin called biofertilizers have been developed.

44. _____ is a cyanobacteria.

- (a) **Anabaena** (b) Caulerpa (c) Rhodophyta (d) Phaeophyta

Explanation

Artificial inoculation of rice and other crop fields with cyanobacteria (Anabaena, Calothrix, Gleocapsa, Lyngbya, Nostoc, Oscillatoria, Scytonema)

45. Artificial inoculation of rice and other crop fields are enriched with _____

- (a) Fertilizer (b) Fungicide (c) Pesticide (d) **Cyano bacteria**

Explanation

Artificial inoculation of rice and other crop fields with cyanobacteria (Anabaena, Calothrix, Gleocapsa, Lyngbya, Nostoc, Oscillatoria, Scytonema) has attracted much attention to increase fertility in several countries.

46. The term bio fertilizer denotes _____
- (a) All the nutrients (b) All the inorganic chemicals
- (c) **Nutrients of biological origin** (d) Organic chemicals

Explanation

The term 'biofertilizer' denotes all the nutrient inputs of biological origin for plant growth. Biological origin refers to microbes producing nitrogen compounds. Bacteria and cyanobacteria are known to fix atmospheric nitrogen and are known as biofertilizers.

47. These are nitrogen fixing bacteria _____
- (a) Azetobacter and E. Coli (b) Sargassum and Spirogyra
- (c) Oedogonium and yeast (d) **Azetobacter and Rhizobium**

Explanation

Nitrogen fixing bacteria like Azotobacter, Bacillus and Rhizobium increased the crop yield to 20%. Pseudomonas striata are used as seed inoculants as biofertilizer coats for cereals.

48. _____ is an aquatic fern.
- (a) Marsclia (b) Riciia (c) Selaginella (d) **Azolla**

Explanation

Azolla is an aquatic fern, which contains an endophytic cyanobacterium Anabaena azollae in its leaves.

49. _____ is widely employed as a successful bio fertilizer in Indian rice fields.
- (a) Indigofera linifolia (b) Acacia nilotica
- (c) Lathyrus (d) **Azolla pinnata**

Explanation

A. pinnata is widely employed as a successful biofertilizer in Indian rice fields. It adds 30 Kg of nitrogen per hectare where the yield is equivalent to that of urea or ammonium phosphate.

50. Mycorrhiza is a _____

- (a) Algae (b) Bryophyte with the roots of higher plants
(c) **Root inhabiting fungus** (d) All the above

Explanation

Mycorrhiza is a root inhabiting fungus found around or inside the roots of many plants. It increases growth and yield and also provides protection to the roots against edaphic (soil) stresses, pathogen and pests.

51. Mycorrhiza provides protection to the roots against the stresses of the soil called _____

- (a) Red (b) Black (c) **Edaphic** (d) Saline

Explanation

Mycorrhiza is a root inhabiting fungus found around or inside the roots of many plants. It increases growth and yield and also provides protection to the roots against edaphic (soil) stresses, pathogen and pests. It helps in the increased uptake of soil and mineral water solution by the plant root system. It provides many uses for the host plants eg. VAM (Vesicular Arbuscular Mycorrhiza) fungi.

52. _____ is an ectotrophic mycorrhiza.

- (a) VAM (b) Mycorrhiza with pinus plant
(c) **Basidiomycetous fungi** (d) Agaricus

Explanation

Ectotrophic mycorrhiza, which are found only outside the surface of roots of plants. eg. Basidiomycetous fungi. Endotrophic mycorrhiza, which are found inside the roots, in the intercellular spaces and even inside the cell (intra and intercellular) eg. VAM fungi.

53. Rhizobium adds about _____ of nitrogen to soil.

- (a) 50 kg (b) 80kg (c) **50 to 150 kg** (d) 200kg

Explanation

Symbiotic nitrogen fixing Rhizobium is a biofertilizer. It adds 50 to 150 Kg of nitrogen to soil per hectare. Azatobacter and Azospirillum secrete antibiotics which act as biopesticides.

54. The surface area of the roots of host plants is increased by _____

- (a) Cyanobacteria (b) Azolla (c) Mycorrhiza (d) **Ectotrophic mycorrhiza**

Explanation

Ectotrophic mycorrhiza, which acts as a biofertilizer, increases the surface area of the roots of host plants, so that more absorption of nutrients by the roots is made possible.

55. An example for green manure is _____

- (a) Nitrosomonas (b) Mycorrhiza (c) Rhizobium **(d) Sesbania**

Explanation

Various leguminous plants like Crotalaria juncea, Cassia mimusoides, Glycine max, Indigofera linifolia, Sesbania rostrata, Acacia nilotica, Leucena, Lathyrus and Mucuna are used as green manures.

56. The cyanobacteria used for artificial inoculation of rice is _____

- (a) E. Coli (b) Bacillus **(c) Nostoc** (d) Pseudomonas

Explanation

Artificial inoculation of rice and other crop fields with cyanobacteria (Anabaena, Calothrix, Gleocapsa, Lyngbya, Nostoc, Oscillatoria, Scytonema) has attracted much attention to increase fertility in several countries.

57. Atomic 2-rice with saline tolerance and pest resistance is a product obtained through _____

- (a) Induced mutation** (b) Protoplasmic fusion
(c) Inbreeding (d) Genetic engineering

Explanation

Atomita 2-rice with saline tolerance and pest resistance, groundnuts with thick shells are products of breeding methods through induced mutation.

2. Crop Diseases And Their Control

58. _____ influence the host and parasite interaction.

- (a) Edaphic condition (b) Prophylaxis
(c) Meteorological condition (d) Pathogens

Explanation

The diseases in crop plants result in a heavy loss of crop yields and cause considerable damage to crops year after year. To check the plant diseases, it becomes necessary to know about the cause of the diseases, of the life history of the causal organism and of the meteorological conditions which influence the host and parasite interaction.

59. _____ is the protection of the host from exposure to the pathogen infection and environmental factors.

- (a) **Prophylaxis** (b) Fertilizer (c) Edaphic factors (d) Soil fertility

Explanation

Prophylaxis includes the protection of the host from exposure to the pathogen, from infection or from environmental factors favourable to disease development.

60. *Oryza sativa* is the botanical name of _____

- (a) **Rice** (b) Wheat (c) Pea (d) Ground nut

Explanation

	Rice - <i>Oryza sativa</i>
<i>Pathogen</i>	Disease incited by a fungus, <i>Pyricularia oryzae</i> .
<i>Name of the disease</i>	Blast disease of rice.
<i>Systematic position</i>	The fungus belongs to class: Deuteromycetes.

61. Blast disease of rice is caused by _____

- (a) Helminthosporium (b) Microsporium
(c) Peziza (d) **Pyricularia oryzae**

Explanation

	Rice - <i>Oryza sativa</i>
<i>Pathogen</i>	Disease incited by a fungus, <i>Pyricularia oryzae</i> .
<i>Name of the disease</i>	Blast disease of rice.
<i>Systematic position</i>	The fungus belongs to class: Deuteromycetes.

62. The symptom that are found in the Rachis leaf blades and leaf sheaths in the disease called _____

- (a) Tikka (b) **Blast** (c) Canker (d) Tungro

Explanation

In blast disease, the symptoms are found on the leaf blades, leaf sheaths and rachis. Characteristic isolated, bluish – green necrotic lesions with a water – soaked appearance are formed on the leaf – blades.

63. *Pyricularia oryzae* belongs to class _____

- (a) Myxomycetes (b) Ascomycetes (c) Basidiomycetes **(d) Deuteromycetes**

Explanation

The fungus *Pyricularia oryzae* when young possesses hyaline and septate mycelium. On maturity, the colour of mycelium changes to olive brown. Conidia are produced terminally.

64. Blast disease of oryzae shows _____ shaped grey necrotic lesion in the centre of the leaf.

- (a) Cup **(b) Spindle** (c) Disc (d) Spherical

Explanation

In Blast disease, the necrotic lesion is spindle shaped grey in the centre and remain surrounded by brown and yellowish zones. The leaves ultimately dry up.

65. Each conidium of *Pyricularia oryzae* is _____

- (a) Obpyriform septate** (b) A septate
(c) Big appendage present (d) Fusiform septate

Explanation

Conidia are produced terminally. Each conidium is obpyriform septate with a small basal appendage.

66. Immersion of seeds in 0.2% solution of _____ for 24 hours controlled the blast disease of rice.

- (a) Agrosan GN **(b) Kalimat B** (c) Cerasan (d) Spergon

Explanation

Immersion of the seeds in 0.2 per cent solution of Kalimat B for 24 hours controlled the disease and promoted the growth of seedlings. The seed protectants such as agrosan, cerasan and spergon have been proved responsible for the control of disease.

67. Removal and destroying _____ plants from paddy fields control the blast disease of rice.

- (a) *Triticum seral* (b) *Oryzae sativa*
(c) *Digitaria marginate* (d) *Arachis hypogeal*

Explanation

Plant debris should be collected and destroyed. The secondary host plants such as *Digitaria marginata* should be collected from paddy fields and destroyed.

68. The dusting of _____ compounds has been suggested for controlling blast disease of rice

- (a) Copper sulphate **(b) Organomercuric** (c) Quicklime (d) Bordeaux

Explanation

The dusting of organomercuric compounds has been suggested for controlling blast.

69. Bordeaux mixture is used as a _____

- (a) An insecticide (b) Pesticide **(c) Fungicide** (d) Herbicide

Explanation

Spraying and dusting

Blast disease can be controlled effectively by spraying the **fungicide**, Bordeaux mixture at least 4 times before and after flowering of the crop. Bordeaux mixture formula is as follows:

Copper sulphate	9 Kgs.
Quick lime	9 Kgs.
Water	250 litres.

The dusting of organomercuric compounds has been suggested for controlling blast.

70. Tungro disease of rice is caused by _____

- (a) Bacterium **(b) Virus** (c) Fungus (d) Nematode

Explanation

Tungro disease of rice

Pathogen Disease incited by a virus Rice Tungro virus. The virus is transmitted by a leafhopper.

71. Cercospora personata causes _____

- (a) Tikka disease of groundnut** (b) Citrus canker
(c) Blast disease of rice (d) Tungro disease of rice

Explanation

Groundnut or peanut - *Arachis hypogea*

Tikka disease of groundnut

Pathogen Disease incited by a fungus ***Cercospora personata***.

Systematic position The fungus belongs to class Deuteromycetes.

72. Antibiotic streptomycin is used to control of _____

- (a) Tikka disease of groundnut **(b) Citrus canker**

(c) Blast disease of rice

(d) Tungro disease of rice

Explanation

The citrus canker infection can be largely prevented by removing the infected branches and spraying the plants with Bordeaux mixture or spraying 3 to 4 times in a season with antibiotic the streptomycin at the rate of 1 gm in 45 liters of water.

73. Citrus canker is caused by _____

(a) *Cercospora personata*

(b) *Digitaria marginata*

(c) ***Xanthomonas citri***

(d) *Acacia nilotica*

Explanation

Citrus canker disease due to a bacterium *Xanthomonas citri*. This bacterium is of bacillus and gram negative type. In India, this is the most commonly prevalent disease during the rains.

3. Genetically Modified Food

74. *Agrobacterium tumefaciens* causes _____

(a) **Crown gall disease**

(b) Tungro disease

(c) Tikka disease

(d) Blight disease

Explanation

Agrobacterium tumefaciens is a soil inhabiting bacterium and has Ti (tumor inducing) plasmid. This bacterium invades crops such as tomato, sunflower, brinjal and cotton and causes crown gall disease which is in the form of tumorous growth.

75. Tomatoes with elevated sucrose and reduced starch could be produced by _____ gene.

(a) *Cartone* gene

(b) *Nif* gene

(c) **Sucrose phosphate synthase gene**

(d) Glucose gene

Explanation

Tomatoes with elevated sucrose and reduced starch could also be produced using sucrose phosphate synthase gene.

76. Acute watery diarrhoea is caused by _____

(a) *E.coli* and *Bacillus*

(b) ***Escherichia coli* and *Vibrio cholerae***

(c) *Bacillus* and *Azotobacter*

(d) *Mycobacterium tuberculosis*

Explanation

Acute watery diarrhoea is caused by Escherichia coli and Vibrio cholerae that colonize the small intestine and produce enterotoxin.

77. By the applications of gene manipulation technique rice crops with _____ and _____ with pulse seeds are produced.
- (a) Vitamin A, sugar (b) Vitamin A, Vitamin D
(c) **Vitamin A, lysine** (d) Vitamin A with Glycine

Explanation

Today, rice crops have been enriched with vitamin A through gene manipulation. Similarly, pulse crop have been tampered with to produce lysine-rich pulse seeds. Such genetically modified food (GMF) are now becoming components of human staple food.

4. Bio - War

78. During World War II paper bags filled with _____ were employed as biological weapons.
- (a) Rats (b) Cockroaches (c) **Plague infested fleas** (d) Rabies virus

Explanation

During World war II, paper bags filled with plague infested fleas were employed as biological weapons to kill thousands of people.

79. Lethal agents produced by GMO is _____
- (a) **Anthrax** (b) Cholera (c) Malaria (d) Dysentery

Explanation

Some of the most lethal agents known to have been tested in biological warfare are anthrax, plague, smallpox and Ebola viruses with viral diseases.

5. Bio – Piracy

80. Exploitation and utilization of bio – resources from a country by several organisations is known as _____
- (a) Bio – war (b) Biological warfare
(c) Bio – fertilizer (d) **Bio – piracy**

Explanation

The clandestine exploitation and utilisation of bioresources from a country by several organisations and multinational companies without proper authorisation is known as Biopiracy.

81. _____ plants possess anticancerous properties
- (a) **Vinca rosea** (b) Tapioca
(c) Phyllanthus emblica (d) Carthamus tinctorius

Explanation

Plants like Catharanthus roseus (Vinca rosea) are exported to countries as medicinal plants since they possess anticancerous properties. The companies of the rich nations are interested in the biomolecules present in the plant. These compounds produced by living organisms are patented and used for commercial activities.

82. _____ is protein produced by Pentadiplandra brazzeana.
- (a) Carotene (b) Cytochrome (c) Flavoprotein (d) **Brazzein**

Explanation

Pentadiplandra brazzeana, a native plant of West Africa, produces a protein called brazzein. It is several 100 times as sweet as sugar. Local people use it as a low-calorie sweetener.

6. Bio – Patent

83. _____ and _____ are the two unique facets of Bio – patency
- (a) ISR and IPP (b) ISRO and IPP
(c) **IPR and IPP** (d) None of these

Explanation

Intellectual Property Protection (IPP) and Intellectual Property Rights (IPR) are the two unique facets of any Bio-patency. Intellectual property includes ‘patents’, ‘trade secrets’, ‘copy rights’ and ‘trade marks’ obtained for processes and products created through one’s own knowledge and research.

84. Plant breeding is the applied branch of _____
- (a) **Genetics** (b) Physiology (c) Anatomy (d) Embryology

Explanation

Another example of Intellectual property is the new crop varieties, which are protected through 'Plant Breeder's Rights' or PBR's. The plant breeder who developed this new variety enjoys the exclusive right for marketing the variety.

85. The Indian patent Act of 1970 allows process patents, but no _____

- (a) Food (b) Minerals
(c) **Products patent of food** (d) Oil food

Explanation

The Indian Patent Act of 1970 allows process patents, but no product patents for foods, chemicals drugs and pharmaceuticals. Duration of patent in India is 5 years.

86. _____ is an oil eating bacteria.

- (a) **Pseudomonas** (b) Bacillus (c) Vibrio (d) Cossus

Explanation

In 1980, the discovery of an oil eating bacterium (Pseudomonas) by a non-resident Indian Scientist (Dr. Chakrabarty) was patented in USA by a multinational Corporation. Similarly, an 'oncomouse' was also patented. All this means that life forms could be patented.

7. Sustained Agriculture

87. Leaves of _____ is a substitute of tea.

- (a) **Ilex paraguriensi** (b) Camelli chinensis
(c) Coffea indica (d) Coffea Arabica

Explanation

Leaves of Ilex paraguriensis, which can be a substitute for tea and powdered seeds of Cola nitida instead of coffee.

88. Avoidance of man - made complex substance are known as _____

- (a) Bio fertilizer (b) Bio – informatics (c) Bio patent (d) **Xenobiotics**

Explanation

Sustainable agriculture includes scientific methods of farming that utilise renewable resources, increase in yield, avoidance of manmade complex substances known as Xenobiotics which are used as insecticides and pesticides that cause pollution to soil and environment.

89. Transfer of _____ to non – leguminous crops will improve higher yield.

- (a) Nif genes (b) Sucrose polymerase
(c) Sucrose phosphate gene (d) All the above

Explanation

Transfer of nif (nitrogen fixing) gene to non- leguminous crops will improve higher yield.

90. _____ is defined as production systems which avoids the use of organic fertilizer, pesticides and growth regulators.

- (a) Crop rotaion (b) Bio – war
(c) **Organic farming** (d) Bio patent

Explanation

Organic farming is defined as production systems which avoids the use of synthetic fertilizers, pesticides, growth regulators and livestock feed additives.

91. Fungus Pyricularia oryzae belongs to the class _____

- (a) Basidiomycetes (b) Schizomycetes
(c) **Deuteromycetes** (d) Ascomycetes

Explanation

The fungus belongs to class Deuteromycetes.

8. Medicinal Plants Including Microbes, 9. Economic Importance

92. Acalyphine is extracted from _____

- (a) **Acalypha indica** (b) Aegle marmelos
(c) Cissus quafrangularis (d) Mimosa pudica

Explanation

The active medicinal compounds like Acalyphine and Triacetoneamine are extracted from **Acalypha indica** . They contain cyanogenic glucoside and alkaloids.

93. The medicinally valuable compounds obtained from medicinal plants are called _____

- (a) **Biomedicines** (b) Bio – war (c) Bio – fertilizer (d) Bio – pesticides

Explanation

Medicinally valuable compounds obtained from the medicinal plants are called ”biomedicines”.

94. Morphine, is obtained from _____ seeds.

- (a) Mustard (b) Pepper (c) Coriander **(d) Poppy**

Explanation

Morphine, the strongest pain killer obtained from Opium poppy - *Papaver somniferum*.

95. Quinine is obtained form _____

- (a) Chincona officinalis** (b) Ephedra sinica
(c) Agathe (d) Jatropha

Explanation

Quinine, antimalarial drug which controls malarial fever is derived from *Cinchona calisaya* and *C. officinalis*.

96. Ephedrine is obtained from _____

- (a) Pinus (b) Cycas **(c) Ephedra** (d) Araucaria

Explanation

Ephedrine, used to treat cough is extracted from the plant *Ephedra sinica*.

97. *Acalypha indica* belongs to _____ family.

- (a) Asteraceae (b) Musaceae **(c) Euphorbiaceae** (d) Apocynaceae

Explanation

Acalypha indica belongs to Euphorbiaceae. The vernacular name of *A. indica* in tamil is kuppaimeni, poonamayakki and its trade name is Indian *Acalypha*.

98. Paste obtained from the leaves of *Acalypha* used for _____

- (a) Cough (b) Sore **(c) Burns** (d) Pain

Explanation

The paste obtained from the leaves of *Acalypha* is applied to burns. The juice extracted from the leaves, mixed with lime and applied on skin to cure diseases caused by ringworms.

99. Fresh juice of *Acalypha* leaves with oil and salt is used for _____

- (a) Joint pain **(b) Rheumatoid arthritis and scabies**
(c) Muscle pain (d) Sprain

Explanation

Fresh juice of acalypha leaves mixed with oil and salt is used for Rheumatoid arthritis and to cure scabies. Powdered leaves are used to cure bedsores and infected wounds.

100. _____ contains cyanogenic glycoside and alkaloids.

- (a) **Triacetoneamine** (b) Marmelosin and commarin
(c) Steroids and Triterpenoids (d) Mimosine and alkaloids

Explanation

The active medicinal compounds like Acalyphine and Triacetoneamine are extracted from this plant. They contain cyanogenic glucoside and alkaloids.

101. Mimosa pudica belongs to the family _____

- (a) **Mimosaceae** (b) Fabaceae (c) Asteraceae (d) Euphorbiaceae

Explanation

Mimosa pudica belongs to Mimosaceae. The vernacular name of M. pudica in tamil is 'Thottal chinungi or Thottal surungi'. Its common english name is Touch-Me-Not plant.

102. Mimosa is used for curing piles, wounds and _____

- (a) Tuberculosis (b) Tetanus (c) **Whooping cough** (d) Measles

Explanation

A decoction of the root obtained from this plant is used to relieve asthma and diarrhoea. This plant is also useful for curing piles, minor skin wounds and whooping cough.

103. The alkaloid extracted from Mimosa is _____

- (a) Ephedrine (b) Hadrone (c) Coumarin (d) **Mimosine**

Explanation

A decoction of the root obtained from this plant is used to relieve asthma and diarrhoea. This plant is also useful for curing piles, minor skin wounds and whooping cough. Mimosine, an alkaloid is extracted from this plant.

104. Solanum nigrum belongs to the family _____

- (a) **Solanaceae** (b) Mimoseae (c) Asteraceae (d) Musaceae

Explanation

Solanum nigrum It belongs to Solanaceae. The vernacular name of S. nigrum in tamil is manithakkali or manathakkali.

105. Solanum nigrum is commonly called _____

- (a) Touch me not **(b) Black night shade** (c) Pirandi (d) Hadjor

Explanation

Solanum nigrum It belongs to Solanaceae. The vernacular name of S. nigrum in tamil is manithakkali or manathakkali. Its trade name is black night shade.

106. Fruits of Solanum nigrum are globose, black coloured _____

- (a) Berry** (b) Drupe (c) Capsule (d) Aggregate fruit

Explanation

In solanum nigrum, Leaves are ovate without hairs. Flowers white borne on extra axillary cymes. Fruits are globose and black coloured berry.

107. Solanum nigrum herb is effective in the treatment of _____ disorders.

- (a) Stomach (b) Heart (c) Lungs **(d) Liver**

Explanation

The extract of solanum nigrum herb is effective in the treatment of liver disorders like cirrhosis of liver. This plant also cures fever, dysentery and promotes urination.

108. Solanin and _____ are extracted from the plant Solanum nigrum

- (a) Mimosine (b) Adepine (c) Resin **(d) Saponin**

Explanation

Active medicinal compounds like solanin and saponin are extracted from this plant.

109. Penicillin is extracted from _____

- (a) Penicillium expanseum (b) Penicillium chrysogenum
(c) Penicillium notatum (d) Penicillium griseus

Explanation

Penicillin is a well known antibiotic obtained from the blue green mold called Penicillium notatum. When it is grown in culture medium, the mycelium excretes an antibiotic substance called penicillin.

110. Streptomycin is obtained from _____

- (a) **Streptomyces griseus** (b) Streptomyces campestris
(c) Streptomyces mycoides (d) Streptomyces bacillus

Explanation

Streptomycin is obtained from the filamentous bacterium, Streptomyces griseus, an actinomycetes. It cures urinary infections, tuberculosis, meningitis and pneumonia.

111. Aureomycin is extracted from _____

- (a) **Streptomyces aureofaciens** (b) Streptomyces grieseus
(c) Strettomyces bacillus (d) Chloromycetius

Explanation

Aureomycin is obtained from actinomycetes, Streptomyces aureofaciens. It is used as a medicine in the osteomyelitis, whooping cough and eye infections.

112. Bacitracin is obtained from _____

- (a) Bacillus mycoids (b) Bacillus antharaces
(c) Bacillus subtilis (d) **Bacillus licheniformis**

Explanation

Bacitracin is an antibiotic obtained from Bacillus licheniformis and it is used to treat syphilis. It is useful in the control of sugar for persons suffering from diabetes.

113. Oryza sativa belongs to _____

- (a) **poaceae** (b) Musaceae (c) Lilliacae (d) Zingiberaceae

Explanation

Rice its binomial is Oryza sativa. It belongs to Poaceae. It is the most important cereal of tropical climate. This plant is an annual grass. The inflorescence is panicle containing a number of branches, each terminating in a single grain.

114. Bran wax is used in chocolate and in the manufacture of _____

- (a) Nail enamel (b) **Lip-Stick** (c) Tooth paste (d) Leather Industry

Explanation

Bran wax is a by-product in bran-oil extraction. It is used in chocolate industry and in the manufacture of lip-sticks.

115. *Arachis hypogea* is the binominal name of _____

- (a) Pea (b) Bengal Gram **(c) Groundnut** (d) Paddy

Explanation

Groundnut or peanut and its binomial name is *Arachis hypogea*

116. Oil cake made from ground nut is fed to _____

- (a) Fowls **(b) Livestock** (c) Dogs (d) Cats

Explanation

The roasted seeds of groundnut are edible. Oil is extracted from the seeds and used as fine cooking medium. Vegetable ghee (peanut butter) is also prepared from this oil. The oil cake is fed to the livestock. It is rich in fatty acids and proteins.

117. Groundnut oil is used as illuminant and _____

- (a) Sedative (b) Purgative **(c) Lubricant** (d) Non-Lubricant

Explanation

Oil is used as illuminant, lubricant. Groundnut shell is used in the manufacture of activated carbon. The groundnut cake is a good cattle feed. The plant after removing the pod, both dried and fresh is a good cattle feed.

118. *Gossypium barbadense* belongs to the family ____

- (a) Malvaceae** (b) Euphorbiaceae (c) Liliaceae (d) Fabaceae

Explanation

Many members of Malvaceae yield fibres. *Gossypium barbadense* (Egyptian cotton) and *G. hirsutum* are some examples for fibre plants. The seed coat of cotton seeds produce fibres on their external surface. So, it is called as surface fibre.

119. Fatty acid obtained from oil is used in the preparation of _____

- (a) Insecticide (b) Lubricant (c) Pesticide **(d) Insecticide and fungicide**

Explanation

Fatty acids obtained from oil is used in the preparation of insecticide, fungicides and plastics, etc.

120. The binominal of teak is _____

- (a) *Oryza sativa* (b) *Solanum nigrum*
(c) ***Tectona grandis*** (d) *Gossypium barbadense*

Explanation

Teak ,binomial is *Tectona grandis*. It belongs to Verbenaceae. It is large deciduous tree and shows resistance to termites.

121. Teak belongs to the family _____

- (a) Vitaceae (b) **Verbenaceae** (c) Zingiberaceae (d) Poaceae

Explanation

Teak ,binomial is *Tectona grandis*. It belongs to Verbenaceae. It is large deciduous tree and shows resistance to termites.

122. Sap wood of teak is _____

- (a) **White** (b) Brown (c) Green emitting fragrance (d) Resistance termites

Explanation

Sap wood of teak is white and heart wood is green emitting fragrance. The timber retains its fragrance for a long time. It is hard , durable and strong and also takes up good polishing.

123. Teak is extensively used for _____

- (a) Interior decoration (b) Ship building
(c) **Making furniture** (d) Manufacture of boards

Explanation

In India, teak is used for making furnitures, buildings, cardboards, railway sleepers, etc. Ships and bridges are also made from this timber.

124. Medicinal properties of plants mentioned even in the oldest _____ veda

- (a) **Rig** (b) Yajur (c) Atharvana (d) Samna

Explanation

Medicinal properties of plants have been mentioned even in the oldest “Rig Veda”.

125. The strongest pain killer obtained from opium poppy is _____

- (a) Quinine (b) Digoxin (c) **Morphine** (d) Ephedrine

Explanation

Morphine, the strongest pain killer obtained from Opium poppy - *Papaver somniferum*.

126. “Hadjor” bone joiner is a trade name of _____

(OR)

Botanical name for pirandai is _____

- (a) *Aegle marmelos* (b) *Solanum nigrum*
(c) *Acalypha indica* (d) ***Cissus quadrangularis***

Explanation

Cissus quadrangularis belongs to Vitaceae. The vernacular name of *C. quadrangularis* in tamil is as pirandai and its trade name is ‘Hadjor’ – bone joiner. It is a common shrub with tendrils.

127. The chloromycetin is used to cure _____

- (a) Pneumonia (b) Urinary infection (c) **Typhoid** (d) Tuberculosis

Explanation

Chloromycetin is obtained from the actinomycete, *Streptomyces venezuelae*. It kills bacillus form of bacteria and cures typhoid fever.