V.M.G.R.R SRI SARADA SAKTHI MAT. HR. SEC. SCHOOL

STD: XII BIOLOGY (B L 6-10 , Z L-6-12) SET-7 MARKS-50

BIO-BOTANY MARKS-25

I.ANSWER THE FOLLOWING :

LN-1

1.Write short note on Heterostyly.
2. Enumerate the characteristic features of Entomophilous flowers**.**
3.Discuss the steps involved in Microsporogenesis.**
4. With a suitable diagram explain the structure of an ovule.**
5. Give a concise account on steps involved in fertilization of an angiosperm plant.
6. What is endosperm. Explain the types.*
7. Differentiate the structure of Dicot and Monocot seed.
8. Give a detailed account on parthenocarpy. Add a note on its significance.*

LN-2

9.What are the reasons for Mendel's successes in his breeding experiment?
10. Explain the law of dominance in monohybrid cross.
11. Differentiate incomplete dominance and codominance.**
12. Describe dominant epistasis with an example.*
13. Explain polygenic inheritance with an example.*
14. Differentiate continuous variation with discontinuous variation.
15. Explain with an example how single genes affect multiple traits and alleles the phenotype of an organism.
16. Bring out the inheritance of chloroplast gene with an example.**

LN-3

17.Write the salient features of Sutton and Boveri concept.
18. Explain the mechanism of crossing over.
19. Write the steps involved in molecular mechanism of DNA recombination with diagram.
20. How is ***Nicotiana*** exhibit self-incompatibility. Explain its mechanism.*
21. How sex is determined in monoecious plants. write their genes involved in it.
22. What is gene mapping? Write its uses.*
23. Draw the diagram of different types of aneuploidy.
24. Mention the name of man-made cereal. How it is formed?

LN-4

25.Mention the application of Biotechnology.
26. What are restriction enzyme. Mention their type with role in Biotechnology.*
27. Is their any possibilities to transfer a suitable desirable gene to host plant without vector? Justify your answer.
28. How will you identify a vectors?
29. Compare the various types of Blotting techniques.
30. Write the advantages of herbicide tolerant crops.
31. Write the advantages and disadvantages of Bt cotton.
32. What is bioremediation? give some examples of bioremediation.
33. Write the benefits and risk of Genetically Modified Foods.

LN-5

34. How will you avoid the growing of microbes in nutrient medium during culture process? What are the techniques used to remove the microbes?
35. What do you mean Embryoids? Write its application.
36.Explain the basic concepts involved in plant tissue culture.
37. Based on the material used, how will you classify the culture technology? Explain it.
38. Give an account on Cryopreservation.
39. What do you know about Germplasm conservation. Describe it.
40. Write the protocol for artificial seed preparation.

LN-6

41.What is vivipary? Name a plant group which exhibits vivipary.
42.Explain Raunkiaer classification in the world's vegetation based on the temperature.
43.List out the effects of fire to plants.
44. What is soil profile? Explain the characters of different soil horizons.
45. Give an account of various types of parasitism with examples.
46. Explain different types of hydrophytes with examples.*
47. Enumerate the anatomical adaptations of xerophytes.**
48. List out any five morphological adaptations of halophytes.
49. What are the advantages of seed dispersal?
50. Describe dispersal of fruit and seeds by animals.

LN-7

51. Shape of pyramid in a particular ecosystem is always different in shape. Explain with example.
52. Generally human activities are against to the ecosystem, where as you a student how will you help to protect ecosystem? *
53.Generally in summer the forest are affected by natural fire. Over a period of time it recovers itself by the process of successions . Find out the types of succession and explain.
54.Draw a pyramid from following details and explain in brief. Quantities of organisms are given-Hawks-50, plants-1000.rabbit and mouse-250 +250, pythons and lizard- 100 + 50 respectively.
55.Various stages of succession are given bellow. From that rearrange them accordingly. Find out the type of succession and explain in detail. Reed-swamp stage, phytoplankton stage, shrub stage, submerged plant stage, forest stage, submerged free floating stage, marsh medow stage.

LN-8

56. How do sacred groves help in the conservation of biodiversity?*

57.Which one gas is most abundant out of the four commonest greenhouse gases? Discuss the effect of this gas on the growth of plants?

58.Suggest a solution to water crisis and explain its advantages.

59. Explain afforestation with case studies.

60. What are the effects of deforestation and benefits of agroforesty?

LN-9

61.How are microbial innoculants used to increase the soil fertility?
62. What are the different types of hybridization? *
63. Explain the best suited type followed by plant breeders at present?
64.Write a note on heterosis.
65. List out the new breeding techniques involved in developing new traits in plant breeding.

LN-10

66.What are millets? What are its types? Give example for each type.

67. If a person drinks a cup of coffee daily it will help him for his health. Is this correct? If it is correct, list out the benefits.

68. Enumerate the uses of turmeric.

69. What is TSM? How does it classified and what does it focuses on?
70. Give an account on the role of *Jasminum* in perfuming.
71.Give an account of active principle and medicinal values of any two plants you have studied. *
72. Write the economic importance of rice.
73. Which TSM is widely practiced and culturally accepted in Tamil Nadu? - explain.
74. What are psychoactive drugs? Add a note *Marijuana* and *Opium*
75. What are the King and Queen of spices? Explain about them and their uses.*
76. How will you prepare an organic pesticide for your home garden with the vegetables available from your kitchen?

BIO-BOTANY (inside)

1.Give the characteristic features of Anemophilous plants .
2. Explain the incomplete dominance with examples.
3. Write the applications of plant tissue culture.
4.Explain the structural changes in chromosome.*
5.How does the wrinkled gene mendel's peas wrinkled ? give molecular explanation.
6. Explain the different mode of pollen tube into the ovule.
7.How do protect the ecosystem?
8. Explain sex determination in papaya.
9. What is bio-safety ? List out potential risks and considerations for safety aspects.
10. Draw schematic representation of ecosystem.

BIO- ZOOLOGY

Ln-1

1.How is juvenile phase different from reproductive phase?
2. Explain the different types of syngamy in living organisms?

Ln-2

3.Describe the structure of the human ovum with a neat labelled diagram.**
4. Give a schematic representation of spermatogenesis and oogenesis in humans.
5.Explain the various phases of the menstrual cycle.
6. Explain the role of oxytocin and relaxin in parturition and lactation.*
7. The following is the illustration of the sequence of ovarian events (a-i) in a human female.

a) Identify the figure that illustrates ovulation and mention the stage of oogenesis it represents.
b) Name the ovarian hormone and the pituitary hormone that have caused the above-mentioned events.
c) Explain the changes that occurs in the uterus simultaneously in anticipation.
d) Write the difference between C and H.

LN-3

8. What are the strategies to be implemented in India to attain total reproductive health?
9. The procedure of GIFT involves the transfer of female gametes into the fallopain tube, can gametes be transferred to the uterus to achieve the same result? Explain.
10. Amnicentesis, the foetal sex determination test, is banned in our country, Is it necessary? comment.
11.Expalin the various barrier methods to control human population.**

LN-4

12. Explain the genetic basis of ABO blood grouping man.**
13. How is sex determined in human beings?
14. Explain male heterogamety.
15. Brief about female heterogamety.
16. Give an account of genetic control of Rh factor.
17. Explain the mode of sex determination in honeybees.
18. Discuss the genic balance mechanism of sex determination with reference to *Drosophila*.

19. What are the applications of Karyotyping?
20. Explain the inheritance of sex linked characters in human being.

LN-5

21.Why the human genome project is called a mega project?
22. From their examination of the structure of DNA, What did Watson and Crick infer about the probable mechanism of DNA replication, coding capability and mutation?
23. Why tRNA is called an adapter molecule?*
24. How is the two stage process of protein synthesis advantageous?
25.Why did Hershey and Chase use radioactively labelled phosphorous and sulphur only? Would they have got the same result if they use radiolabelled carbon and nitrogen?
26. Explain the formation of a nucleosome.
27. It is established that RNA is the first genetic material. Justify giving reasons.*

Ln-6

28.Explain the three major categories in which fossilization occur?
29.How does Hardy-Weinberg's expression (p2+2pq+q2=1) explain that genetic equilibrium is maintained in a population? List any four factors that can disturb the genetic equilibrium.
30.Explain how mutations, natural selection and genetic drift affect Hardy Weinberg equilibrium.
31.How did Darwin explain fitness of organisms?
32.Taking the example of Peppered moth, explain the action of natural selection. What do you call the above phenomenon?
33.Darwin's finches and Australian marsupials are suitable examples of adaptive radiation – Justify the statement.
34.Who disproved Lamarck's Theory of acquired characters? How?
35.How does Mutation theory of De Vries differ from Lamarck and Darwin's view in the origin of new species.
36. Explain stabilizing, directional and disruptive selection with examples.

LN-7

37.Explain the process of replication of retrovirus after it gains entry into the human body.
38. Explain the structure of immunoglobulin with suitable diagram. ***
39. What are the cells involved innate immune system?
40. What is vaccine? What are its types?
41. A person is infected by HIV. How will you diagnose for AIDS?
42.List the common withdrawal symptoms of drugs and alcohol abuse. *
43. What do you think it is not possible to produce vaccine against "commom cold" ?

LN-8

44.Write short notes on the following.
a) Brewer's yeast b) *Ideonella sakaiensis* c) Microbial fuel cells
45. List the advantages of biogas plants in rural areas.
46. When does antibiotic resistance develop?

LN-9

47.Mention the number of primers required in each cycle of PCR. Write the role of primers and DNA polymerase in PCR. Name the source organism of the DNA polymerase used in PCR.
48. How is the amplification of a gene sample of interest carried out using PCR?
49.ELISA is a technique based on the principles of antigen-antibody reactions. Can this technique be used in the molecular diagnosis of a genetic disorder such as Phenylketonuria?
50.Gene therapy is an attempt to correct a Genetic defect by providing a normal gene into the individual. By this the function can be restored. An alternate method would be to provide gene product known as enzyme replacement therapy, which would also restore the function. Which in your opinion is a better option? Give reasons for your answer.
51. What are transgenic animals? Give examples.
52. If a person thinks he is infected with HIV, due to unprotected sex, and goes for a blood test. Do you think a test such as ELISA will help? If so why? If not, why?

53. Explain how ADA deficiency can be corrected?
54.What are stem cells? Explain its role in the field of medicine.
55. One of the applications of biotechnology is 'gene therapy" to treat a person born with a hereditary disease
i) What does "gene therapy" mean?
ii) Name the hereditary disease for which the first clinical gene therapy was used.
iii) Mention the steps involved in gene therapy to treat this disease.
56. PCR is a useful tool for early diagnosis of an Infectious disease. Elaborate.
57. What are recombinant vaccines?. Explain the types.
58. Explain why cloning of Dolly, the sheep was such a major scientific breakthrough?
59. Mention the advantages and disadvantages of cloning.
60. Explain how recombinant Insulin can be produced.

LN-10

61.Give an account of population regulation.
62. Give an account of the properties of soil.
63. Differentiate between Tundra and Taiga Biomes.
64. List the adaptations seen in terrestrial animals.
65. Describe Population Age Distribution.
66.Describe Growth Models/Curves.
67. Tabulate and analysis of two species population interaction.

LN-11

67.What are the three levels of biodiversity?
68.Why do we find a decrease in biodiversity distribution, if we move from the tropics towards the poles?
69. What are the factors that drive habitat loss?
70. Where are biodiversity hotspots normally located? Why?
71. Why is biodiversity so important and worthy of protection?
72. Why do animals have greater diversification than plant diversity?
73. Alien species invasion is a threat to endemic species – substantiate this statement.
74. Mention the major threats to biodiversity caused by human activities. Explain.
75. What is mass extinction? Will you encounter one such extinction in the near future. Enumerate the steps to be taken to prevent it.
76. In north eastern states, the jhum culture is a major threat to biodiversity – substantiate.
77. List out the various causes for biodiversity losses.*
78. How can we contribute to promote biodiversity conservation?
79. Write a note on i)protected areas , ii) Wild life sanctuaries.

Ln-12

80.Discuss briefly the following : a. Catalytic converter b.Ecosan
81. What are some solutions to toxic dumping in our oceans?
82. Describe how deforestation might contribute to global warming.
83. What are the effects of noise pollution ?

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BIO- ZOOLOGY (inside)

1. Enlist the differences between r- selected and k- selected species .
2.Tabulate the major sources of solid waste.
3. Describe the structure of human sperm with a neat labeled diagram .
4. Explain the structure of RNA which plays a vital role in protein synthesis by transferring amino acids with diagram.
5.write about the methodologies of HGP.*
6. Write short notes on : i. population density ii.Natality and Mortality. *
7. Explain the steps involved in the production in the production of recombinant hgH.
8. Write an essay on radio active waste management.

9. Write the salient features of Human Genome Project .*
10.Write the effects of chemicals used in the field of agriculture.*
11.Explain the evolutionary path of man.
12. Discuss the characteristics of desert biomes.
13. Recentaly E-wastes and plastics wastes have created dangerous effects in the environment. In order to protect the environmemt what will be the solution?