QUESTION BANK

1. What are chasmogamous floers?
2. Define a clone. How would variations occur in such individuals?
3. Does the human blastocyst have zona pellucida? Give reasons.
4. Name the pregnancy hormone. Why is it called so?
5. The cells of a morula are totipotent but that of the ICM of a blastocyst are not. Justify.
6. A flower is brightly coloured and has a sweet smell. Name its pollinating agent. What other features would these flowers have to ensyre pollination?
7. What is the target organ and functions of LH in a male and FSH in a female?
8. What are the neuroendocrine mechanisms that bring about parturition.
9. Name the male accessory glands State their role in keeping the sperms active.
10. What do you understand by floral rewards? Give examples. Who or what are pollen robbers? Why are they called so?
11. Castor is an albuminous , dicot seed. Explain the underlined words. How does seed dormancy help?
12. Describe the organization of a unisexual monoecious organism with an example.
13. Explain how gamete transfer would occur among gametes that are both nonmotile.
14. What does the picture depict? What are the advantages and disadvantages of using this structure?
15. Expand MTP. What are the government rulings regarding MTP in our country? Draw a labeled diagram of a mature male gametophyte.
16. Describe the process of fertilization in a plant. What are the post fertilization events that take place in order to form a mature seed. Give diagrams wherever necessary. Explain the process of fertilization in humans and describe briefly with diagrams, the post fertilization events that occur to form a mature foetus.
17. Why do internodal segments of sugarcane fail to propagate vegetatively even when they are in contact with damp soil?
18. Mention any two probable reasons for rapid rise of population in our country from about 350 million at the time of independence to about 1 billion by the year 2000.

19. The gene I that controls the ABO blood grouping in human beings has three alleles IA, IB and i .(a) How many different genotypes are likely to be present in the human population? (b) Also, how many phenotypes are possibly present?
20. State any one reason to explain why RNA viruses mutate and evolve faster than other viruses.
21. Mention any two measures for prevention and control of alcohol and drug abuse among adolescents.
22. What would be the impact on the environment around a thermal power plant if its electrostatic precipitator stops functioning? Give a reason.
23. Why is thermoregulation more effectively achieved in larger animals than in smaller ones?
24. A plasmid and a DNA sequence in a cell need to be cut for producing recombinant DNA. Name the enzyme which acts as molecular scissors to cut the DNA segments.
25. Even though each pollen grain has two male gametes, why are at least 10 pollen grains and not 5 pollen grains required to fertilise 10 ovules present in a particular carpel?
26. Draw schematically a single polynucleotide strand (with at least three nucleotides). Provide labels and directions. 2
27. Choose and rearrange any four of the following groups of plants in an ascending evolutionary scale.
    Cycads; Gnetales; Monocotyledons; Rhynia-like plants; Cholorophyta ancestors; Dicotyledons; and Seed ferns.
28. In which parts of the body of the hosts do the following events in the life cycle of Plasmodium take place? Name both, the body part and the host.
    a) Fertilization
    b) Development of gametocytes
    c) Release of sporozoites
    d) Asexual reproduction
29. A person injured in a road accident and requiring an urgent immune response was brought to a doctor.
    (a) What did the doctor immediately do?
    (b) What kind of an immunity was he providing to the patient?

30. Define this kind of immunity.
31. Why does a beekeeper keep beehives in crop fields during the flowering periods?
32. State any two advantages.
33. List any four advantages of genetically modified crop plants over their wild/ domesticated relatives.
34. Which one out of the eurythermal or stenothermal species is likely to survive in increased global temperatures? Give one reason for your answer.
35. Explain why ecological succession will be faster in a forest devastated by fire than on a bare rock? Also compare succession in case of an abandoned land after floods with that on a bare rock?
36. What is the cause of adenosine deaminase deficiency in a person? Why is it that even after infusion of genetically. engineered lymphocytes into the patient suffering from deaminase deficiency, the cure is not permanent?
37. A policeman finds a very small piece of body tissue from the site of a crime and takes it to the forensic department.
38. By which technique will they amplify the DNA collected from the tissue sample?
39. Mention in a sequence, the 3 steps involved in each cycle of this technique;
40. What is the role of thermostable DNA polymerare in this technique?
41. In case of Bt cotton, how does the toxic insecticide protein produced by the bacterium kill the insect pest but not the cell of Bacillus thuringiensis where the toxic protein is generated?
42. You have been deputed by your school principal to train local villagers in the use of biogas plant. With the help of a labelled sketch explain the various parts of the biogas plant.
43. Illustrate schematically the process of initiation. elongation and termination during transcription of a gene in a bacterium
44. How did Louis Pasteur successfully demolish the popular theory of spontaneous generation? What were his conclusions?

45. If a true breeding homonzygous pea plant with green pod and axial flower as dominant characters is crossed with a recessive homonzygous pea plant with yellow seeds and terminal flowers, then what would be the:
    (a) genotypes of the two parents;
    (b) phenotype and genotype of the F1 offspring;
    (c) phenotypic distribution ratio in F2 population?
46. With the help of labelled diagrams, depict the stages of a microspore maturing into a pollen grain.

47. (a) Draw a longitudinal sectional view of a typical anatropous ovule to show the site where double-fertilization takes place. Label any four major parts of the ovule.
    (b) How do the male gametes that are present in the pollen grains reach the site mentioned by you in part (a) to cause double fertilization?

48. (a) When and where does spermatogenesis in a human male begin to take place?
    (b) With the help of schematic labelled diagrams trace the development of mature spermatozoa in a human male.
    (c) Describe the structure of a human sperm.

49. (a) Describe the experiment conducted by Alfred Hershey and Martha Chase for identification of genetic material.
(b) Why is it considered pathbreaking in the field of Molecular Biology?

47)(a) What could be the series of events when an inducer is present in the medium in which E.coli is growing?
(b) Name the Inducer.

48)(a) Write an equation for Verhulst Pearl logistic Growth Where
N = Population density at a time t
r = Intrinsic rate of natural increase and
K = Carrying Capacity
Draw a graph for a population whose population density has reached the carrying capacity.

Why is this logistic growth model considered a more realistic one for most animal populations?

Draw a growth curve where resources are not limiting to growth of a population