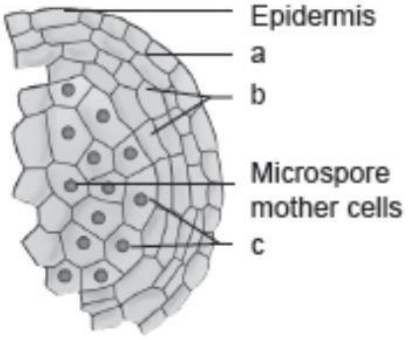
SATISH CHANDRA MEMORIAL SCHOOL

MODEL QUESTION PAPER

Class –XII

BIOLOGY

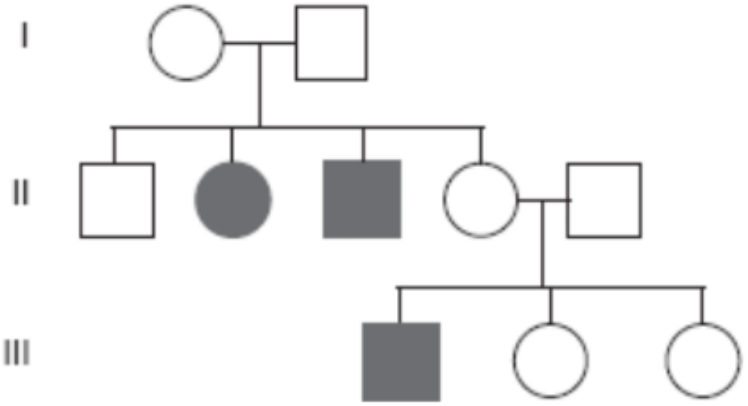
1. Offspring derived by asexual reproduction are called clones. Justify giving two reasons. 1
2. In yeast and *Amoeba*, the parent cell divides to give rise to two new individual cells. How does the cell division differ in these two organisms? 1
3. Under unfavourable conditions, Amoeba shows encystations. What does it mean? 1
4. A bilobed dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes can this anther produce? 1
5. An anther with malfunctioning tapetum often fails to produce viable male gametophyte. Give any one reason. 1
6. Name the three haploid cells at the chalazal end of the embryo sac of angiosperms. 1
7. Name the cells that nourish the germ cells in the testes. Where are these cells located in the testes? 1
8. How is a primary spermatocyte different from a secondary spermatocyte? 1
9. Name the phase in the menstrual cycle that precedes ovulation. 1
10. Mention one positive and negative application of amniocentesis. 1
11. Name two STDs which can be transmitted through contaminated blood. 1
12. What is monohybrid cross? 1
13. What is meant by linked genes? 1
14. Unicellular organisms are immortal, whereas multicellular organisms are not. Justify. 3
15. Name the units of vegetative propagation in water hyacinth. Explain giving reasons why it has become the most invasive aquatic weed. 3
16. Differentiate between oestrous and menstrual cycle. 3
17. What is meant by the terms ‘homothallic’ and ‘heterothallic’? Illustrate with an example for each. 3
18. Differentiate between oviparous and viviparous animals with an example of each. 3
19. Given below is an enlarged view of one microsporangium of a mature anther. 3



   i. Name ‘a’, ‘b’ and ‘c’ wall layers.
   ii. Mention the characteristics and function of the cells forming the wall layer ‘c’.
20. Write the differences between wind-pollinated and insect-pollinated flowers. Give an example of each type. 3
21. Name the two end products of double fertilization in angiosperms. How are they formed? Write their fate during the development of seed. 3
22. Draw a transverse sectional view of an apple and label the following parts along with their technical names: 3
   i. Edible part

ii. Encloses the embryo
iii. Forms the fruit wall.

23. State what is apomixis. Comment on its significance. How can it be commercially used? 3
24. Spermatogenesis in human males is a hormone- regulated process. Justify. 3
25. Draw a diagram of human sperm. Label all the parts. 3
26. Describe how the changing levels of FSH, LH and progesterone during menstrual cycle induce changes in the ovary and the uterus in human female. 3
27. Draw a diagram of the structure of a human ovum surrounded by corona radiata. Label the following parts: 3
    i. Ovum
    ii. Plasma membrane
    iii. Zona pellucida
28. Name the stage of human embryo at which it gets implanted. Explain the process of implantation. 3
29. Why is breast-feeding recommended during the initial period of an infant's growth? Give reasons. 3
30. Describe two natural methods of birth control, other than lactational amenorrhoea. 3
31. Name and explain the surgical methods advised to human males and females as a means of birth control. Mention its one advantage and one disadvantage.
32. Work out a cross between true-breeding red and white-flowered dog-flower plants (snapdragon) upto F_2 progeny. Explain the results of F_1 and F_2 generations. 3
33. Explain the mechanism of sex-determination in honeybees. 3
34. Study the given pedigree chart and answer the questions that follow. 3



    i. Is the trait recessive or dominant?
    ii. Is the trait sex-linked or autosomal?
    iii. Give the genotype of the parents shown in generation I of their third and fourth child in generation II.

35. Why are human females rarely haemophilic? Explain. How do haemophilic patients suffer? 3
36. What are vegetative propagules? Name any four of them along with an example for each. 5
37. Describe the structure of a young anther as seen in transverse section. 5
38. Give a schematic representation of oogenesis in humans. Mention the number of chromosomes at each stage. Correlate the life phases of the individual with the stages of the process. 5

39. Explain a monohybrid cross, taking seed coat colour as a trait in *Pisum sativum*. Work out the cross upto F_2 generation. State the laws of inheritance that can be derived from such a cross. What is the phenotypic ratio in a dihybrid cross? 5

40. State the law of independent assortment. Using Punnett square, demonstrate the law of independent assortment in a dihybrid cross. 5