

Subject: Biology (Set-B)

Class: 10+2

Time: 3 Hrs.

M.M: 70

General Instructions:-

(i) All questions are compulsory.

(ii) This question paper consists of four sections A, B, C and D. Section A contains 8 questions of one mark each, Section B is of 10 questions of two marks each, Section C is of 9 questions of three marks each and Section D is of 3 questions of five marks each.

(iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such question.

(iv) Wherever necessary, the diagram drawn should be neat and properly labeled.

Section A

1. What is “blackbile” in good humor hypothesis of health?
2. Which end does the tRNA join with m RNA during the translation?
3. What is SCP?
4. It was diagnosed by a specialist that the immune system of the body of a patient has been suppressed. Name the disease the patient is suffering from and its causative agent.
5. If a double stranded DNA has 10% of cytosines, calculate the percent of adenine in the DNA.
6. What is Red data book? Give one endangered species listed in red data book.
7. Honey bees rear for obtaining honey and bee wax. Give the name of real product of honey bees and term for rearing of honey bees.
8. What is triple fusion? Name the nuclei involved in triple fusion.

Section-B

9. (a) Who 1st proposed semi-conservative replication of DNA ?
(b) Which organism is used in this experiment?
(c) What is the result of 2nd and 3rd generation?
10. What are restriction enzymes? Name one restriction enzyme and one enzyme used for joining alien DNA and vector DNA.
11. What do you mean by autoimmunity? Give one problem of autoimmunity disorder.

OR

Identify the diseases of person in picture and give the causing agent and vector of disease.



12. What are the major causes of species losses in a geographical region? Give the name of one alien species of animal which is responsible of biodiversity losses.
13. What are bacteriophage vectors? Name the two phage vectors that are commonly used.
14. Dr. Subhash Mukhopadhyay created history when he became the first physician in India to perform the In vitro fertilization resulting in a test tube baby “Durga” (Kanupriya Agarwal) on October 3, 1978. His feat has been given belated recognition as the Indian physician who in 1986 was “officially” regarded as being the first doctor to perform in-vitro fertilization in India.

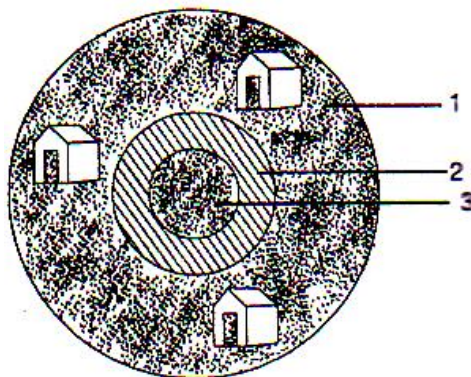


Give the name of doctor and first test tube baby credit for India’s first test tube baby born on August 6,1986 at K.E.M Hospital,Mumbai.

15. What is the biological significance of *Azolla pinnata* in agriculture ? What role it play in rice crop productivity ?
16. What is DNA fingerprinting? Mention its application.
17. Define decomposition and describe the processes and products of decomposition.
18. What is apomixis? Give the importance of apomixis in hybrid seed industry.

Section-C

19. (a) Show the succession on bare rocks by diagram only.
(b) A biosphere reserve has different zones.
(i) Label the guidelines marked 1 and 3.
(iii) What is the function of the zone marked 2?



20. What is biological magnification? How does DDT as a water pollutant undergo biological magnification?
21. (i) Draw a neat labeled diagram of the longitudinal section of an anatropous ovule.
(ii) Which cell of the ovule gets transformed into megaspore mother cell?
22. In *Antirrhinum majus*:

RR is phenotypically red, rr is white and Rr is pink. Mention the phenotype and the ratio in F_1 generation of the following crosses :

$$RR \times Rr$$

$$rr \times RR$$

$$Rr \times Rr$$

$$rr \times Rr$$

Name the other plant which shows similar type of inheritance. Give the scientific name.

OR

What is meant by R-cells and S-cells with which Frederick Griffith carried out this experiments on *Diplococcus pneumoniae*? What did he prove from these experiments.

23. What is an age pyramid? What do they show for human population? Represent diagrammatically the different shapes of age pyramids and what shapes each of them represent?

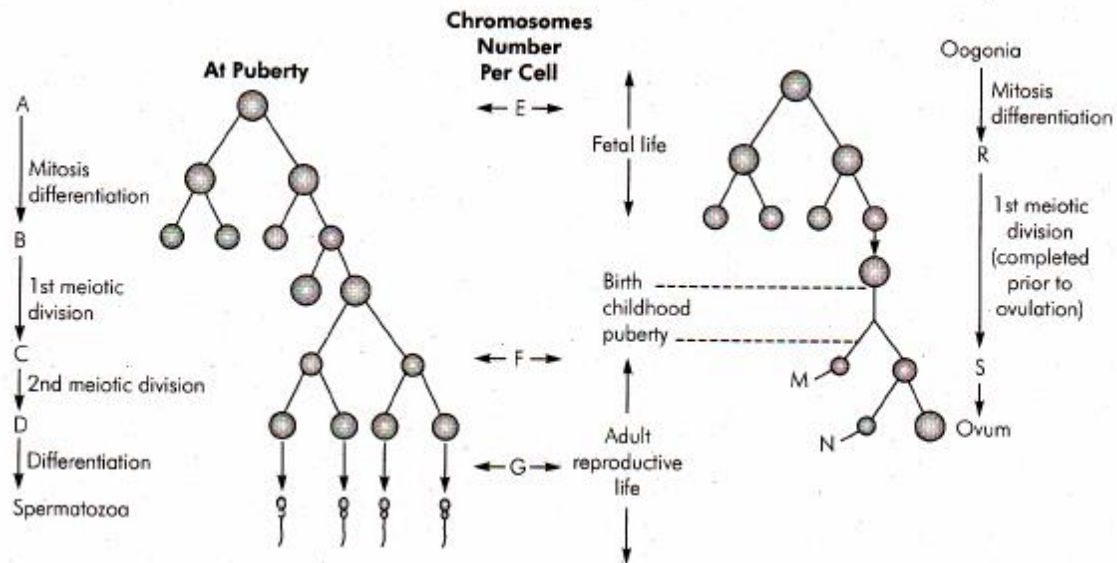
- 24 (i) Explain antibiotic resistance observed in bacteria in light of Darwinian selection theory.
- (ii) Describe one example of adaptive radiation.
25. Where do transcription and translation occur inside a living cell? Briefly describe the three steps involved in the process of translations.
26. (a) Why we should avoid antipyretic in mild fever. Give another term use for endogenous pyrogen released by macrophages.
- (b) What is the cause of Tertian malaria and Quartan malaria. Which is the most serious parasite of malaria in India. What is Relapse malaria?
27. What is polymerase chain reaction? Describe the basic requirements of a PCR reaction.

Section-D

28. What is menstrual cycle? Represent the various events during a menstrual cycle in a mammalian female with hormonal and uterine events.

OR

According to the given diagram of human gametogenesis, answer the following questions.



- (a) Name the stages A, B, C and D.
- (b) Write the numerical value of E, F and G.
- (c) Which structures are represented by R and S?

(d) Identify M and N, why M is smaller than S and N is smaller than ovum and what is the significance of it?

29. What are transgenic bacteria? Illustrate using any one example.

OR

(a) What are cry proteins? Name an organism that produces it. How has man exploited this protein to his benefit?

(b) What is gene therapy? Illustrate using the example of adenosine deaminase (ADA) deficiency.

30. T.H. Morgan while going on a walk, found a fruit covered with flies. He took the flies to their laboratory. He along with his students performed experiment for several generations. They surprised to see some of characters do not obey Mendelian principle of independent assortment.

(i) Write common name of the flies and also its scientific name.

(ii) The tendency of two characters to remain inherited together for different generations is called as

(iii) Tendency of two characters to stay separately for different generation is.....

(iv) Draw the diagram of physical basis of this type of inheritance.

OR

Colour blindness is a sex linked disease. It is due to X-chromosome. Normal parents have three daughter, all normal and one son colour blind. What is the reason for it. Show the inheritance of a sex linked recessive case of human being.

ALL THE BEST

By

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