

INTERNATIONAL INDIAN SCHOOL DAMMAM
FIRST TERMINAL EXAMINATION - JULY- 2014

CLASS: XII

BIOLOGY

Time: 3 hrs.

Max.Marks: 70

SET A

General Instructions:

- i) All questions are compulsory.
- ii) The question paper consists of five sections A, B, C,D and E. Section A contains 5 questions of 1 mark each, Section B is of 5 questions of 2 marks each, Section C has 12 questions of 3 marks each, Section D has 1 question of 4marks whereas Section E is of 3 questions of 5 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 questions.
- iv) Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION A

(1x 5 = 5)

- Q: 1 Name the phenomenon and the cell, responsible for the development of a new individual without fertilisation as seen in honeybees.
- Q: 2 How is it possible in Oxalis and Viola plants to produce assured seed sets even in the absence of pollinators?
- Q: 3 Writethe similarity between the wing of a butterfly and the wing of a bat. What do you infer from the above with reference to evolution.
- Q: 4 After a succesful 'in vitro' fertilisation, the fertilised egg begins to divide. Where is this egg transferred before it reaches the 8-celled stage and what is this technique termed?
- Q: 5Mention one difference between a monoecious and a dioecious plant. Give one example of a monoecious plant.

SECTION B

(2x 5 = 10)

- Q: 6What do you understand by aminocentesis ? Why is there statutory ban on this?
 Give reason.
- Q: 7How is polyspermy prevented in humans?

Q: 8 State in what ways Stanley Miller stimulated the conditions of :

- a) Primitive atmosphere on earth.
- b) Energy source at the time of origin of life.

OR

Q: 8 State Hardy- Weinberg principle of genetic equilibrium. Knowing that genetic drift disturbs the equilibrium, mention what does the disturbance in genetic equilibrium lead to.

Q: 9 Explain any two devices by which autogamy is prevented in flowering plants.

Q:10 a) Write the possible genotypes Mendel got when he crossed F_1 tall pea plant with a dwarf pea plant.

b) What is male heterogamety? Give an example of an organism showing it.

SECTION C

(3x 12 = 36)

Q:11 Draw a labelled diagram of the reproductive system in Human female.

Q:12 Branching descent and natural selection are the two key concepts of Darwin Theory of Evolution. Explain each concept with the help of a suitable example.

Q:13 i) Name the enzyme that catalyses the transcription of hnRNA.

ii) Why does the hnRNA need to undergo changes? List the changes hnRNA undergoes and where in the cell such changes take place.

Q:14 a) Write the characteristic features of anther, pollen and stigma of wind pollinated flowers. b) How do flowers reward their insect pollinators. Explain

Q:15 How did Hershey and Chase prove that DNA is the hereditary material? Explain their experiment.

OR

Q:15 Unambiguous, universal and degenerate are some of the terms used for the genetic code. Explain the salient features of each one of them.

Q:16 Describe the stages of oogenesis in human females.

Q:17 How does the pollen mother cell develop into mature pollen grain?

Q:18 Work out a cross between true- breeding red and white flowered Snapdragon plants upto F_2 progeny. Explain the results of F_1 and F_2 generation.

Q:19 Describe how the changing levels of FSH, LH and progesterone during menstrual cycle induce changes in the ovary and the uterus in human female.

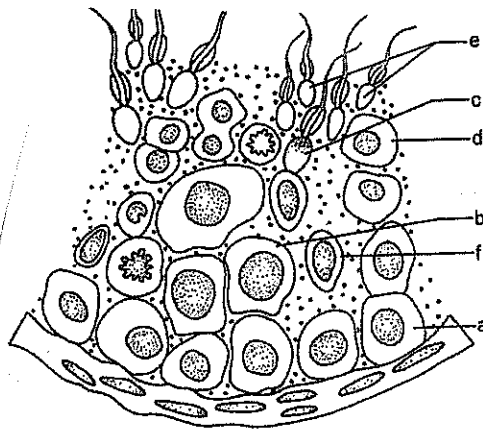
Q:20 a) Draw a schematic representation of the structure of a transcription unit and show the following in it: i) Direction in which transcription occurs ii) polarity of the two strands involved. iii) Template strand iv) Terminator gene

b) Mention the function of the promoter gene in transcription.

Q:21 Explain how the following act as contraceptives?

a) CuT b) sahari

Q:22 Study the given figure



i) pick out and name the cells that undergo spermiogenesis.

ii) Name 'a' and 'b' cells. What is the difference between them with reference to the number of chromosomes.

iii) Pick out and name the motile cells.

iv) What is 'f' cell? Mention its function.

v) Name the structure of which the given diagram is a part.

SECTION D

SECTION D

(4 x 1 = 4)

Q: 23 Joy attended the blood donation camp and saw that the person taking the blood from the people using same needles again and again. He is being a Biology student objected to it.

- i) What qualities are being shown by him?
- ii) Why do you think he objected to it?

SECTION E

(5 x 3 = 15)

Q:24 Name the genes that constitute an operon. How does lac operon get switched on in the presence of lactose?

OR

Q:24 Name and describe the technique that will help in solving a case of paternity dispute over the custody of a child by two different families.

Q:25 Describe the mechanism of pattern of inheritance of ABO blood groups in humans.

OR

Q:25a) Why is haemophilia generally observed in human males? Explain the conditions under which a human female can be haemophilic.

- b) A pregnant human female was advised to undergo MTP. It was diagnosed by her doctor that the foetus she is carrying has developed from a zygote formed by an XX- egg fertilised by Y- carrying sperm. Why was she advised to undergo MTP?

Q:26 How does megaspore mother cell develop into a 7-celled, 8- nucleate embryosac in an angiosperm? Draw a neat labelled diagram of a mature embryosac.

OR

Q:26 a) Explain the process of double fertilization in Angiosperms.

- b) List the changes that each part of the fertilized ovule undergoes while developing into a seed.