

**INTERNATIONAL INDIAN SCHOOL DAMMAM**  
**FIRST TERMINAL EXAMINATION - JUNE- 2015**

XII

BIOLOGY

Time: 3 hrs.

Max. Marks: 70

**SET A**

General Instructions:

- i) All questions are compulsory.
- ii) The question paper consists of three 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 Mention the unique feature with respect to flowering and fruting in bamboo species.
- Q: 2 Name the type of pollination as a result of which genetically different types of pollen grains of the same species land on the stigma.
- Q: 3 What is morula? Where is it formed?
- Q: 4 Expand ZIFT and ART.
- Q: 5 Mention the type of alleles that expresses itself only in homozygous state in an organism.

**SECTION B**

(2x 5 =10)

- Q: 6 What is colostrum? Why is it important to be given to the new born infants?
- Q: 7 Explain any two devices by which autogamy is prevented in floweing plants.

OR

Cleistogamy can favour only autogamy. Justify

- Q: 8 Draw a neat labelled diagram of replication fork.
- Q: 9 State the condition when 'genetic code' is said to be  
 i) unambiguous and specific. ii) degenerate

Q:10 A male *Drosophila* (fruit fly) and female birds are heterogametic while the female fruitfly and the male birds are homogametic. Why are they called so?

**SECTION C**

(3x 12 = 36)

Q: 11 a) A template strand is given below. Write down the corresponding coding strand and the mRNA strand that can be formed along with their polarity.  
3' ATGCATGCATGCATG 5'

b) Draw a labelled diagram of nucleosome.

Q:12 Explain menstrual cycle.

Q:13 Explain how false, true and parthenocarpic fruits are different from each other. Give one example of each.

Q:14 Trace the development of male gametophyte from microspore mother cell in the microsporangium in the flowering plants.

OR

a) Draw a diagram of angiospermic embryo sac where fertilisation is just completed. Label the following parts.

- i) Micropylar end of the embryo sac.
- ii) The part that develops into an embryo.
- iii) The part that develops into an endosperm.
- iv) The degenerating cells at the chalazal end.

Q: 15 Name the scientists who proved experimentally that DNA is a genetic material. Discuss their experiment.

Q: 16 How is the child affected if it has grown from the zygote formed by an XX- egg fertilized by Y- carrying sperm? What do you call this abnormality?

Q: 17 Draw a labeled diagram of the L.S of embryo of grasses. How does it differ from that of bean.

Q: 18 a) A normal couple gave birth to one haemophilic son and two normal daughters. Work out the cross to show the genotypes of the parents and their progeny.

b) Give the possible genotypes of the parents who can give birth to haemophilic daughters.

Q: 19 a) Name the scientist who called tRNA an adaptor molecule?

b) Draw the structure of tRNA charged with methionine.

Q:20 What is placenta? Write a brief account of its structure and functions.

Q:21 Write short note on natural methods of birth control

Q:22 Differentiate between external and internal fertilisation with examples.

SECTION D

(4 x 1 = 4)

Q:23 Veena has been blamed by her mother-in-law for the birth of a baby girl consecutively for the fourth time. Veena's husband convinced his mother that he has to be blamed for this.

a) Which values have been exhibited by Veena's husband?

b) What scientific explanation Veena's husband might have been given to convince his mother?

SECTION E

(5 x 3 = 15)

Q:24 Name the genes that constitute lac operon. How is the operator switch on and off in the expression of gene in this operon? Explain.

OR

Q:24 a) Explain transcription in prokaryotes.

b) In what ways the transcription in eukaryotic cells different from that of prokaryotic cell.

Q:25 a) During his studies on genes in *Drosophila* that were sex-linked, T.H Morgan found F<sub>2</sub> population phenotypic ratios deviated from expected 9:3:3:1. Explain the conclusion he arrived.

b) In pea plants, the colour of the flower is either violet or white, whereas human skin colour shows many gradations. Explain giving reasons how is it possible.

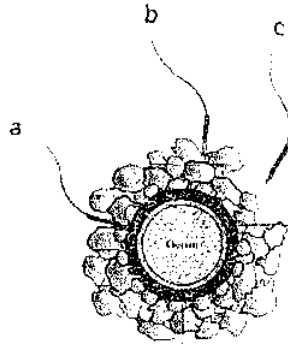
OR

Differentiate between dominance, co-dominance and incomplete dominance with one example each.

P.T.O

- Q: 26 a) Describe the events of spermatogenesis with the help of schematic representation.
- b) Write any four differences between spermatogenesis and oogenesis.

**OR**



- a) Compare the fate of sperms shown in the diagram.
- b) What is the role of zona pellucida in this process?
- c) Analyze the changes occurring in the ovum during this process.
- d) Mention what helps in the entry of sperm into the ovum.
- c) Specify the region of female reproductive system where the event represented in the diagram taking place.