APEEJAY SCHOOL, SHEIKH SARAI-I
FIRST TERMINAL EXAMINATION - 2016
CLASS – XII - BIOLOGY

M.M : 70

TIME: 3 Hrs

GENERAL INSTRUCTIONS

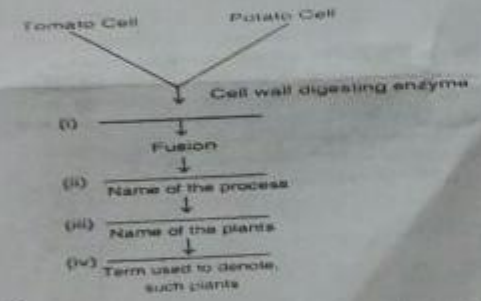
i) *There are total 26 questions and five sections in the question paper*
ii) *Section A contains 1- 5 question of 1 mark each*
iii) *Section B contains 6-11 questions of 2mark each*
iv) *Section C contains 12-22questions of 3 marks each*
v) *Section D contains 23, value based question of 4 marks*
vi) *Section E contains 24-26, long answer type of 5 marks each*

Section-A (1x5 =5)

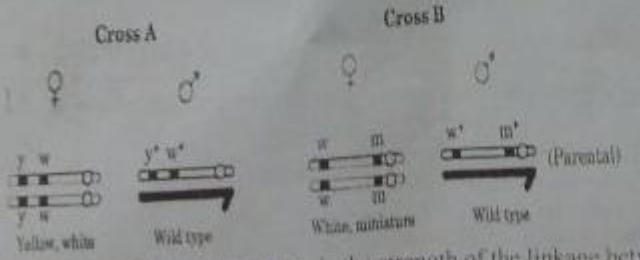
1. Name any two types of cells which acts as cellular barrier to provide innate immunity in humans.
2. Pick out the ancestral line of cycads from the list given below:
   Fern, herbaceous lycopods, seed ferns and horsetails.
3. What are the latest methods of detection of cancer?
4. Rena had just undergone a kidney transplant. A bioactive molecular drug is administered to oppose kidney rejection by the body. What is the bioactive molecule? Also name the microbe from which this is extracted?
5. What is the total number of haploid nuclei and cells in a mature embryo sac?

Section-B (2x5=10)

6. Observe the process of hybridisation given below and fill in the blanks:



7. Study the figure given below and answer the question that follows:



Identify in which of the crosses is the strength of the linkage between the genes is higher. Give reasons in support of your answer.

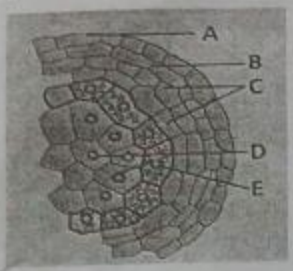
8. Draw a well labelled diagram of Nucleosome.
9. Name any two sources of e- waste and write two different ways for their disposal.
10. Define inbreeding depression. How can it be got rid of in cattle?

SECTION – C (12 x 3= 36)

11. Spermatogenesis in human males is a hormone regulated process. Justify.

12. a) Name the scientist who called t-RNA an adaptor molecule?
b) Draw a clover leaf structure of this molecule showing the following :
(i) Tyrosine attached to its amino acid
(ii) Anticodon for this amino acid in its correct site .

13. Refer to the given diagram showing transverse section of a typical microsporangium and answer the question that follows:



(i) Label A to E .
(ii) What is the ploidy level of part labelled D?
(iii) What is the function of part E?

14. Describe the development of dicot embryo with the help of labelled diagrams.

15. A man with haemophilia ,a recessive,sex linked condition has a daughter of normal phenotype. She marries a man who is normal for the trait. What is the probability that a daughter of this mating will be haemophilic? A son? If couple has four sons, what is the probability that all four will be born with Haemophilia?

16. a) Name the infective stage of Plasmodium in which Anopheles mosquito takes along with blood meal from an infected human.
b) Why does the infection causes fever in humans.
c) Give flow chart of the part of the life cycle of the parasite passed on the insect.

17. Explain various stages of ovarian cycle with the help of well labelled diagrams.

18. Shown below is the double stranded bacterial DNA sequence coding for a hypothetical strands are shown, the top strand reads 5' to 3' left to right, while the bottom strand reads 5' to 3',right to left. The nucleotide are numbered 1-100. Note transcription begin with and includes C\G

```
1                   20                  40
5'-GTGTCCGTCTAATATTGTGAGATGTTATATCCCGCCGTCAACACCATCAA-3'
   ---------+---------+---------+---------+---------+
3'-CACAGGCAGATTATAACACTCTACAATATAGGGCGGCAGTTGTGGTAGTT-5'

          60                  80                  100
5'-ACAGGATAATCGCCTGCTGGGGCAAAGGCGGTGAAGGTAAAGGTGTTGCC-3'
   ---------+---------+---------+---------+---------+
3'-TGTCCTATTAGCGGACGACCCCGTTTCCGCCACTTCCATTTCCACAACGG-5'
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(i) Which strand is used as a template for the transcription top or bottom?
(ii) What are the first 15 nucleotide of the resulting mRNA? Indicate the 5'and 3' end of m RNA
(iii) What are the FIVE amino acids translate from the resulting mRNA?
(iv) Do the underlined nucleotide TAA encode for a Stop codon for a protein. Briefly explain your answer.

OR


Wolf


Tasmanian wolf

a) Recognise and explain the process by which Tasmanian wolf evolved.

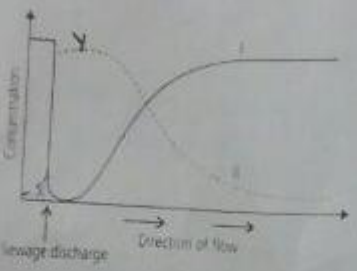
b) Give one example of animal that evolved along with Tasmanian wolf

c) Compare and contrast the two animals shown.

Prior to a sports event, blood and urine samples of sports persons are collected for drug test.
a) Why is there need to conduct such tests?
b) Name the drugs the authorities usually look for?
c) Write the generic names of two plants from which these drugs are obtained.
d)

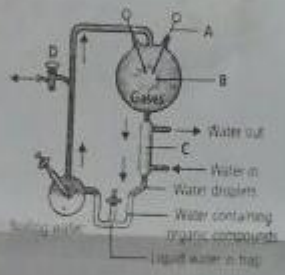
20. Explain the salient features of Hugo de Varies Theory of mutation. How is Darwin's Theory of Natural Selection different from it? Explain

21.



a) What do curve I and II represent in the given graph?
b) Explain the process occurring at point X in the given graph.
c) Explain the cause of appearance of peaks X and Y in the graph.

22.



Refer to the figure

a) Identify the given figure and label the parts A, B, C, D.
b) Name the gases used to stimulate primitive atmosphere?
c) Briefly describe the experiment given in the figure.

Section-D (1x4=4)

23. A heavily bleeding and bruised road victim was brought to a nursing home by a passer-by. The doctor immediately gave him an injection to protect him against a deadly disease.
a) What did the doctor inject into patients body?
b) How do you think this injection would protect the patient against the disease?
c) Name the disease against which the injection was given and the kind of immunity it provides.
d) What value is shown by this passer by?

Section-E (3x5=15)

24. What did Mesenlson and Stahl observe? When
a) They cultured coli in a medium containing 15 NH4Cl for a few generations?
b) They transferred one such bacterium to the normal medium of NH4Cl and cultured for two generations.
c) What did they conclude from this experiment? Explain with the help of diagrams.

OR

a) Explain the process of DNA replication with the help of a schematic diagram.
b) In which phase of the cell cycle does replication occur in eukaryotes? What would happen if cell division is not followed after DNA replication?

25. a) State the arrangement of different genes that in bacteria is referred to as operon?
b) Draw a schematic labelled illustration of lac operon in a switched on state?
c) Describe the role of lactose in lac operon.

OR

a) Draw a well diagram of biogas plant.
b) How do methanogens help in producing biogas?

P.T.O.

dihybrid heterozygous round yellow seeded garden pea offspring was crossed with double recessive parent:

i) What type of cross is this?

ii) Work out the phenotype and genotype of the progeny.

iii) What principle of Mendel is illustrated through this? State the principle.

b) One of the main objectives of biotechnology is to minimise the use of insecticide on cultivated crops. Explain with the help of suitable example how insect resistant crops have been developed using technique of biotechnology.

OR

Given below are diagrams showing the different stages in the process of fertilization of an egg in the female tract.

i) Use the alphabet given below each diagram to show the correct order in the process of fertilization.

ii) Explain the events that occur during this process.