Class-XII

SUBJECT- Biology

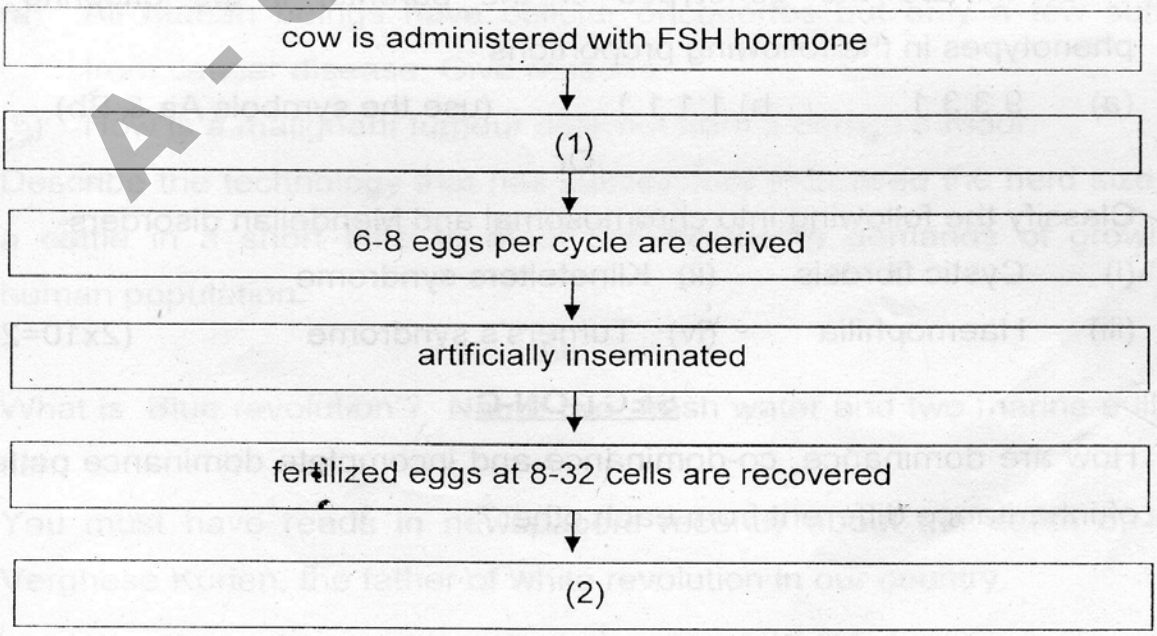
Paper-2 (MM-70)

Section-A

1) A garden pea plant (A) produced inflated yellow pods and another plant (B) of the same species produced constricted green pods. Identify the dominant traits.
2) Why do certain genes tend to be inherited together in a cell at the time of cell division?
3) Why is hnRNA required to undergo splicing?
4) How does HIV differ from a bacteriophage?
5) How do interferons protect us?
6) What would happen to the immune system, if thymus gland is removed from the body of a person?
7) State the importance of biofortification?
8) List any two economically important products for humans obtained from Apis indica? (1x8=8)

Section-B

9) How does culturing of Spirulina solve the food problems of growing population?
10) Study the flow chart given below and answer the questions that follow-



(i) Identify the events that take place at stages (1) and (2) respectively

(ii) State the importance of technology explained above.

11) Name an opioid drug and its source plant. How does the drug affect the human body

Or

Name and explain the type of immunity that is provided by injecting microbes deliberately during immunization into the human body.

12) Explain metastasis? Why is it fatal.

13) Compare the roles of enzymes DNA- polymerase and DNA- ligase in the replication fork of DNA.

14) Name the category of codons, UGA belongs to Mention its functions in translation

15) A single base mutation in a gene may not 'always' result in loss or gain of functions. Do you think the statement is correct? Defined your answer.

16) What proportion of individuals produced in the progeny of a cross between into individuals with genotype. Tt Ss will be TtSs and ttss, respectively.

17) A plant of Antirrhinum majus with red flowers was crossed with another plant of the same species of same special with white followers. The plants of f1 generation bore pink flowers. Explain the pattern of inheritance with the help of a cross.

18) What will be the genotypes of the parents, if the offspring had phenotypes in the following proportions:-

(a) 9:3:3:1 b) 1:1:1:1 (use the symbols Aa & Bb)

Or

Classify the following into chromosomal and Mendelian disorders-

(i) Cystic fibrosis (ii) Klinefelters syndrome

(iii) Haemophilia (iv) Turners's syndrome (2x10=20)

SECTION-C

19) How are dominance, co-dominance and incomplete dominance patterns of inheritance different from each other?

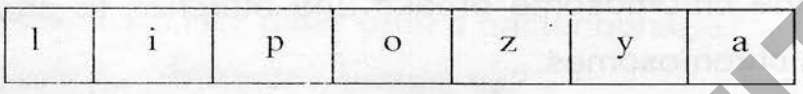
20) A non-haemophilic couple was informed by their doctor there is possibility of haemophilic child to be born to them. Explain the basis an which the doctor conveyed this information, give the genotypes and phenotypes of all the possible children who could be born to them.

21) (a) Construct a complete transcription unit with promoter and terminator on the basis of the hypothetical template strand given below-

A T G C A T G C A T A C

b) Write the RNA strand transcribed from the above transcription unit along with its polarity

22) Given below is a schematic representation of a lac operon-



a) identify i and p

b) Name the inducer for this operon and explain its role.

23) Explain the process of charging of t-RNA. Why is it essential in translation.

24) (a) Why do symptoms of malaria not appear immediately after the entry sporozoites into the human body, when bitter by female Anopheles? Explain.

(b) Give the scientific name of the malarial parasite that causes malignant malaria in humans.

25) (a) All human beings have cellular oncogenes but only a few suffer from cancer disease. Give reasons.

(b) How is a malignant tumour different from a benign tumour.

26) Describe the technology that has successfully increased the herd size of a cattle in a short time to meet the increasing demands of growing human population.

Or

What is 'Blue revolution'? Name two fresh water and two marine edible fish.

27) You must have reads in newspapers recently about the death of Mr. Verghese Kurien, the father of white revolution in our country.

a) What is white revolution?

b) A farmer who has been working in your farm, new gets some money and wants to set- up a dairy farm. As student of biology how will y you help him to have a successful dairy farm management. (9x3=27)

Section-D

28) What will happen-

i) When complete sets of chromosomes are added to diploid genome?

ii) When individual chromosomes are added to or deleted from the diploid genome?

iii) When a part of the chromosome is lost.

iv) When a part of the chromosome breaks and attaches to another non- homologous chromosomes.

v) When a part of the chromosome breaks and attaches to the homologue .

Or

How many different type of gametes could result from each of the following genotypes?

a) Aa b) AABB (c) AaBb (d) EeCc (e) FFIIJj

29) Who proposed that DNA replication is semiconservative? How was it experimentally proved by Meselson and Stahl?

Or

How did Hershey and Chase prove that DNA is the heredity material? Explain their experiment with suitable diagrams

30) What is the mechanism by which the AIDS virus causes deficiency of immune system of the infected person.

Or

What are the two groups of cells that work for specific immunity? Explain four unique features of specific immunity. (5x3=15)