

Model Question -2
(Biology XII)

Time: 3 hrs

F.M. :75

Part –I (Botany)
Group A

Circle the correct one from given alternatives.

(5 ×1 = 5)

1. The current sequence of nitrogen base pairing of RNA is
a. A = C b. A = G c. A = U d. A = T
2. The process of development of pollen grains in the anther is known as
a. microsporogenesis b. megasporogenesis
c. microgametogenesis d. megagametogenesis
3. Cortical tissue in the internal parts of the plants are basically made up of
a. meristem b. parenchyma c. collenchyma d. sclerenchyma
4. When a plant cell is placed in a hypertonic solution, there is shrinkage of protoplasm due to the
a. diffusion b. imbibition c. plasmolysis d. deplasmolysis
5. Androgenic haploids are developed by the culture of
a. pollen grains b. ovules c. embryos d. seeds

Group B

Give short answer to the following questions.

(4•4=16)

1. How does monocot root anatomically differ from dicot root? Discuss with diagrammatic sketches. (2+2=4)
2. Define embryogenesis? Discuss it in reference to monocot plants with necessary diagrams. (1+2+1=4)
3. What are biopesticides? How are they superior to synthetic pesticides? (1+3=4)
4. What were the reasons for the selection of the pea plant for the experiment of hybridization by Mendel? Name the seven pairs of contrasting characters that Mendel had selected for the experiment. (2+2=4)

Or

Opening and closing of stomata is regulated by the guard cells. How do the guard cells regulate? Discuss with relevant diagrams. (3+1=4)

Group C

Give long answer to the following questions.

(2 × 8 = 16)

5. Define replication? Name the types of DNA replication. Discuss the mechanism of semi conservative mode of DNA replication with necessary diagrams. (1+1+4+2=8)

OR

What is dihybrid cross? How is the phenotypic ratio of F₂ generation obtained as 9:3:3:1? Discuss with necessary cross and justify the Law of Inheritance derived from the cross. (1+2+3+2=8)

6. Define photosynthesis. Discuss the process of conversion of solar energy into chemical energy during light reaction. How is the light reaction linked with the dark reaction? (1+6+1=8)

Part – II (Zoology)

Group A

Circle the correct answer from the given alternatives.

(6•1=6)

1. Striped muscles have
a. one nucleus b. many nucleus c. two nucleus d. no nucleus
2. Grey crescent is present in
a. fertilized egg of frog b. eye of frog
c. retina of cockroach d. brain of rabbit
3. The nucleus in W.B.C. is
a. round b. oval c. spindle shaped d. irregular
4. The yellow color of urine in Vertebrates Is due to
a. cholesterol b. urochrome
c. uric acid d. melanin
5. Mental retardation may be due to
a. cholesterol b. disease in the brain prior to birth
c. damage to the brain d. drug intake
6. Chicken raised specially for meat is known as
a. broiler b. pellets c. hen d. cockerels

Group B

Short answer question:

(4×4 = 16)

1. Differentiate striped muscles from unstriped muscles.
2. Write a short note on cleavage in frog.

OR

What is population? Describe the trends of human population in Nepal.

3. Describe the chemistry of digestion of food in the small intestine.
4. Write the advantages of fish farming in Nepal.

Group C

Long answer questions.

(2×8 = 16)

5. Describe the causative agent, symptoms and control measures of Tuberculosis.
6. Describe structure and function of adrenal gland.

OR

Describe the structure and function of the human eye.