

**Model Question -6
(Biology XII)**

Time: 3 hrs

F.M. :75

Part – I (Botany)

Group A

Multiple choice questions

(5x1=5)

Attempt all questions

1. Vascular bundles in dicot stem are
 - a. Closed, conjoint, endarch
 - b. Open, conjoint, endarch
 - c. Closed, conjoint, exarch
 - d. Open, conjoint, exarch
2. The outermost and innermost wall layers of microsporangium in an anther are respectively
 - a. epidermis and endothecium
 - b. Middle layer and tapetum
 - c. epidermis and tapetum
 - d. endothecium and tapetum
3. Person having genotype IA and IB would show the blood group as AB. This is because of
 - a. incomplete dominance
 - b. co-dominance
 - c. segregation
 - d. pleiotropy

4. Wilting of a plant is the result of excessive
 - a. absorption
 - b. transpiration
 - c. photosynthesis
 - d. respiration
5. Which of the following growth hormones produces apical dominance?
 - a. Ethylene
 - b. Cytokinin
 - c. Auxin
 - d. Gibberellin

Group B

Give short answers to the following questions. (4×4=16)

1. How does xylem differ from phloem? Discuss with necessary diagrams. (3+1=4)
2. What do you mean by fertilization? Discuss the process of double fertilization with necessary figures. (1+3=4)
3. Define gene pool. Discuss in detail about different characteristics of genetic code. (1+3=4)
4. Discuss the basic concept of genetic engineering. Explain its practical applications. (1+3=4)

Or

Define mutation. Describe different types of gene mutation with examples. (1+3=4)

Group C

Give long answers to the following questions (2×8=16)

5. List seven traits selected by Mendel for hybridization experiment. Discuss monohybrid cross and the laws that depend upon monohybrid cross. (2+3+3=8)

Or

What are genetic materials? Describe the double helical structure of DNA. List structural differences between DNA and RNA. (1+5+2=8)

6. What do you mean by the ascent of sap? Discuss the most convincing theory associated with it. Also list the factors affecting the process of ascent of sap. (1+5+2=8)

Part – II (Zoology)

Group A

Circle the correct answer from the given alternatives (6×1 = 6)

1. Which of the following tissues consists of actively dividing cells?
 - a. Epithelial tissue
 - b. Connective tissue
 - c. Muscular tissue
 - d. Nervous tissue
2. A primary oocyte gives rise to ovum/ova in frogs.
 - a. one
 - b. two
 - c. four
 - d. many
3. Enzyme responsible for digestion of milk protein is
 - a. casein
 - b. rennin
 - c. pepsin
 - d. lactase
4. The pacemaker of human heart is
 - a. SA node
 - b. AV node
 - c. both a and b
 - d. bundle of His
5. Stimulants are the drugs that temporarily tend to increase mental alertness and self-confidence. Which one of the following is not a stimulant?
 - a. cocaine
 - b. caffeine
 - c. tranquilizers
 - d. amphetamines
6. Keratoplasty is quite common because
 - a. it is easily available
 - b. it doesn't invite immune response
 - c. it can be easily transplanted
 - d. it can be preserved for a long time

Group B

Give short answers to the following questions.

(4·4 = 16)

1. Cartilage and bones both support the body and come under skeletal connective tissue. Mention the differences between these two types of tissues. (3+1)
2. Fertilization involves fusion of sperm and ovum to form zygote. Explain how it occurs in frog. (2.5+1.5)

Or

Define organ transplantation and discuss its different types. (1+3)

3. Explain the working mechanism of the human heart with necessary diagram. (2.5+1.5)
4. Write a short note on renal disorders. (2+1+1)

Group C

Give long answers to the following questions

(2·8 = 16)

5. Describe the structure and function of the human brain with well labeled diagram.

Or

(3+3+2)

Describe the mechanism of urine formation in human.

(5+3)

6. What is AIDS? Mention its causative organism, mode of transmission, symptoms, diagnosis, treatment and preventive measures. (1+1+2+2+0.5+0.5+1)