Model Question -10
(Biology XII)

Time: 3 hrs **F.M. :75**

Attempt all questions

Part: I (Botany)

Group A

Circle the correct answer from the given alternatives. **(5x1=5)**

1. A woman has a child with Klinefelter's syndrome. His chromosomal constitution is
   a. 44 + X b. 44 + Y c.44 + XXY d. 44 + XYY
2. Stock and scion are connected with
   a. breeding b. grafting c. emasculation d. micropropagation
3. Monocot stems are anatomically characterized by
   a. scattered vascular bundles b. sclerenchymatous hypodermis
   b. conjoint closed bundles d. all of these
4. Principal micro-organism involved in formation of yogurt is
   a. *Streptococcus thermophilus* *b. Lactobacillus acidophilus*
   b. *Streptococcus lactis* *d. Leuconostoc citrovorum*
5. One of the following groups consists of the termination codons.
   a. UUU, UUA and UUG b. UUA, UUG and UUC
   b. UUA, UAG and UGA d. UAA, UGG and UCC

Group B

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

1. What do you mean by criss-cross inheritance? Show it in the case of human with a suitable example. (1 + 3 = 4)
2. Fermentation has many important uses in industries. Discuss some of them. (4)
3. Describe the process of dicot embryogeny with labelled diagrams. (2+2=4)
4. How do you differentiate anatomically dorsiventral leaves from isobilateral leaves? (2+2=4)

   OR

   Modern wheat *Triticum aestivum* is an allohexaploid (6n). How do you agree with this statement? (2+2=4)

Group C

Give long answers to the following questions. **(2·8 =16)**

5. What do you mean by dihybrid cross? Explain with suitable example, Mendel's principle of Independent Assortment with the help of a dihybrid cross. Give two reasons for his success. (1+ 5+2)

Or

What are the components of deoxyribonucleic acid? Describe the double helical structure of DNA. Give its functions also. (2+ 4+2)

6. Aerobic respiration completes in four phases. What are these? Describe the mechanism of respiration that occurs in mitochondria.

Part – II (Zoology)

Group A

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

1. Neuroglia are non-conduction accessory cells of nervous tissue. The neuroglia which lines the brain ventricles are
   a. microglia b. oligodendrocytes c. Schwann cells d. ependymal cells
2. The cleavage found in frog is
   a. meroblastic b. holoblastic c. vertical d. horizontal
3. Enzyme responsible for digestion of milk sugar is
   a. casein b. rennin c. pepsin d. lactase
4. The amount of blood pumped by heart in one minute is
   a. tidal volume b. cardiac volume c. stroke volume d. cardiac output
5. The disorder related with liver due to alcoholism is
   a. cirrhosis b. emphysema c. arrhythmia d. stenosis
6. The major group of cells depleted in AIDS is
   a. helper T cells b. macrophages c. monocytes d. killer T cells

Group 'B'

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

1. Areolar tissue is the most common type of connective tissue. Describe the structure and function of areolar tissue. (3+1)
2. Neurulation is the process of formation of neural tubes. Explain in detail the process of formation of it. (2+2)

   Or

   Write a short note on IVF. (1+2+1)
3. Explain the mechanism of pulmonary ventilation with necessary diagram. (2.5+1.5)

4. Give the meaning of drug abuse and write the causes and consequences of drug abuse. (0.5+1+2.5)

Group 'C'

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

5. Describe the structure and function of human female reproductive organs with a well labeled diagram. (5+3)

   Or

   Describe the respiratory organs of humans with necessary diagram. (5+3)

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