

Code: A-B223123-M

I Semester Exam – 2024-25

4 x 550

Std.: XII

Sub: Biology

Marks: 70

Date:

Roll No.: _____

Time: 3 hr.

General Instructions :

The question paper is divided into four section.

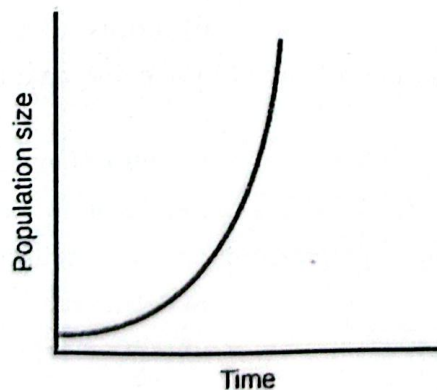
1. Section - A : Q.No. 1 contains Ten multiple choice type of questions carrying one mark each.
In case of MCQ, evaluation will be done for the first attempt only. Q.No.2 contains Eight very short answer type of questions carrying one mark each.
2. Section - B : Q. No. 3 to Q. No. 14 are short answer type of questions carrying two marks each.
3. Section - C : Q. No. 15 to Q. No. 26 are short answer type of questions carrying three marks each.
4. Section - D : Q. No. 27 to Q. No. 31 contains Five long answer type of questions carrying four marks each.
5. Begin the answer of each section on a new page.

Section A

Q.1. Select and write the correct answer for the following multiple choice type of questions. (10)

- i) If a double stranded DNA has 20% of cytosine, what will be the percentage of adenine in it ?
a) 20 %
b) 30%
c) 40%
d) 60 %
- ii) Identify the correct sequence of layers that cover the testis. (outside to inside).
a) Tunica albuginea, tunica vaginalis, tunica vasculosa
b) Tunica vasculosa, tunica albuginea, tunica vaginalis.
c) Tunica albuginea, tunica vasculosa, tunica vaginalis.
d) Tunica vaginalis, tunica albuginea, tunica vasculosa.
- iii) _____ is the ratio of the volume of RBCs to the total volume of blood.
a) Diapedesis
b) Hematocrit
c) Polycythemia
d) Leukemia
- iv) Affinity of haemoglobin for _____ is about 250 times more than for oxygen.
a) Carbon monoxide
b) Carbonic acid
c) Carbon dioxide
d) Glucose
- v) The trophoblast cells that are in contact with the embryonal knob during blastulation are called _____.
a) cells of sertoli
b) cells of Leydig
c) cells of pfluger
d) cells of Rauber
- vi) In _____ type of Dichogamy, androecium matures earlier than the gynoecium.
a) Protogyny
b) Protandry
c) Xenogamy
d) Geitonogamy

P.T.O.



- vii) The nervous system of mammals uses both electrical and chemical means to send signals via neurons. Which part of the neuron receives impulses ?
- viii) Mention the chromosome number on which the mutated gene for β -Thalassemia is present.

Section – B

Attempt any Eight of the following questions.

(16)

- Q.3 Name the disorder caused due to under secretion of Thyroxine in infants and adults.
- Q.4 Give reason : The pyramid of energy is always upright.
- Q.5 Give the major abiotic factors that influence any habitat.
- Q.6 A women is unable to conceive due to blockage in the upper segment of the oviducts. State the infertility treatment to be given to her and describe it.
- Q.7 How is bradycardia different from tachycardia?
- Q.8 Give the names of all four mixed cranial nerves.
- Q.9 What is natality ? Enlist its two types.
- Q.10 Give one example each of Monoecious and Dioecious plant.
- Q.11 Differentiate between X-chromosome and Y-chromosome.
- Q.12 Complete the following table.

Organism	Respiratory Surface / Organ
1. Salamander	_____
2. Spiders	_____

- Q.13 How many meiotic divisions are required for the formation of 100 seeds in angiosperm ?
- Q.14 Arrange the following steps of DNA fingerprinting in correct sequence.
- Gel electrophoresis
 - Isolation of DNA
 - Selection of DNA probe
 - Southern blotting.

Section – C

Attempt any Eight of the following questions.

(24)

- Q.15 Give the names and functions of enzymes involved in lactose metabolism in *E. coli*.
- Q.16 Explain devices for Autogamy.
- Q.17
- What is ecological succession ?
 - Distinguish between Primary and Secondary succession.
- Q.18 Name the germinal layers from which the following organs / glands develop.
Kidneys, Parathyroid gland, Mammary glands, Lungs, Pineal gland, Blood vessels.
- Q.19 Explain the different steps involved in formation of mRNA from hnRNA.
- Q.20 Sketch and label – Conducting system of human heart.
- Q.21 Give the functions of –
- Mineralocorticoids
 - Glucocorticoids
 - Gonadocorticoids

- Q.22 Human placenta is Haemochorial. Explain.
- Q.23 With the help of a suitable diagram, explain the mechanism of hormone action through intracellular receptors.
- Q.24 Match the disorders of column I to the symptoms of column II.

Column - I	Column - II
1. Asthma	a) Inflammation of lungs
2. Emphysema	b) Constriction of bronchioles
2. Pneumonia	c) Breakdown of alveoli

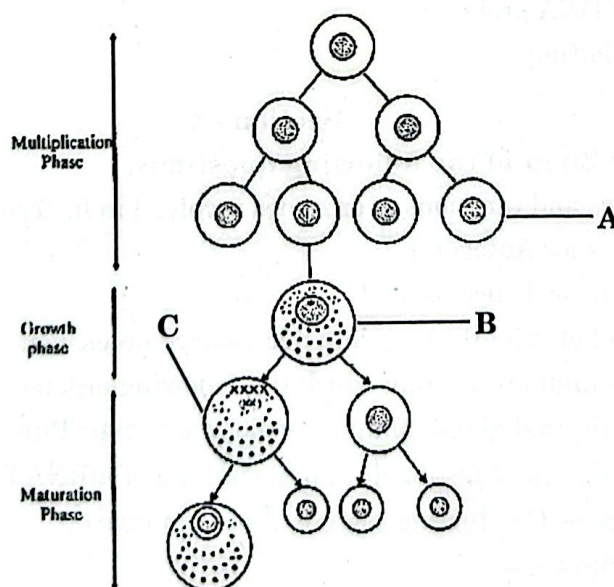
- Q.25 Write a note of Alzheimer's disease.
- Q.26 If a normal woman marries a Haemophilic man, what will be the phenotype of their progeny ? Show it in the form of a chart.

Section - D

Attempt any Three of the following questions.

(12)

- Q.27 Explain the following terms :-
- 1) Dormancy
 - 2) Apomixis
 - 3) Parthenocarpy
 - 4) Polyembryony
- Q.28 Explain the process of Blood clotting.
- Q.29 A typical dihybrid cross is carried out between round and yellow seeded plant with wrinkled and green seeded plant. With appropriate symbol write the genotype of -
- a) Homozygous recessive parents.
 - b) Gametes produced by the F_1 generation.
 - c) Gametes produced by both the parents.
 - d) Homozygous dominant parents.
- Q.30 Identify the process from the given chart and label the parts A, B, C.



- Q.31 Name the functional areas of cerebrum. Write their functions.