Code: A-B223123-A	**I SEMESTER EXAM - 2024-25**	4 x 255
Std.: XII	Sub: Biology	Marks: 70
Date:	Roll No.: _____	Time:

General Instructions:

The question paper is divided into FOUR sections:

(1) ***Section A:*** *Q. No. 1 contains Ten multiple choice type of questions carrying one mark each. 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. l4 are short answer type of questions carrying Two marks each. (Attempt any Eight).*

(3) ***Section C:*** *Q. No.15 to Q. No. 26 are short answer type of questions carrying Three marks each. (Attempt any Eight).*

(4) ***Section D:*** *Q. No. 27 to Q. No. 31 long answer type of questions carrying Four marks each. (Attempt any Three).*

(5) Began the answer to 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. *In Morgan's experiment the genes for yellow body and white eye were strongly linked and showed only _____ percent recombination*
(A) 37.2 *(B)98.7* *(C) 62.8* *(D) 1.3*

ii. *Find the odd one with respect to pollinating agent*
(A) Lotus *(B) Zostera* *(C) Water hyacinth* *(D) Waterlily*

iii. *The connective tissue covering around the nerve fascicule is called*
(A) perineurium *(B) endoneurium* *(C) exoneurium* *(D) epineurium*

iv. *_____ enzyme inactivates heparin*
(A) prothrombinase *(B) thrombin* *(C) fibrinogen* *(D) thromboplastin*

v. *Vertical distribution of different species of plants and animals occupying different levels, is known as*
(A) Stratification *(B) Zonation* *(C) Pyramid of energy* *(D) Systematics*

vi. *All are examples of Intergenic (non-allelic) interactions, except*
(A) pleiotropy *(B) epistasis* *(C) incomplete dominance* *(D) polygenes*

vii. *In Hamburger's phenomenon _____,*
(A) Cl-diffuse into WBCs *(B) Cl- diffuse into RBCs*
(C) Na+ diffuse into RBCs *(D) Na+ diffuse into WBCs*

viii. *The impulse requires about_____ to cross a synapse.*
(A) 0.8 to 1 milliseconds *(B) 20 milliseconds*
(C) 0.3 to 0.5 milliseconds *(D) 0.8 milliseconds*

ix. *The _____ controls the depth and rhythm of respiration*
(A) Haldane effect *(B) Chloride shift*
(C) Na-KPump *(D) Hering-Breuer reflex*

x. *_____ has been developed for the cases in which only the entrance to the oviducts or the upper segment of the oviducts in blocked.*
(A)ICSI *(B)GIFT* *(C)ZIFT* *(D) LNG-20*

Q.2. *Answer the following questions:* *[8]*

i. *What is atresia?*

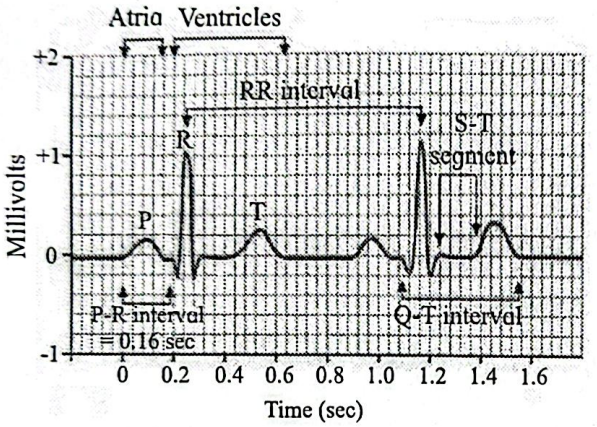
ii. *A man's pulse rate is 75 per minute and cardiac output is 6000 cm^3 per minute, Find the stroke volume*

iii. *What joins pulmonary trunk and aortic arch ?*

iv. *What is cryptorchidism?*

v. *How many Na+ions , Na+- K+Pump pumps out for every 2 K+ions they pump into the cell.*

vi. *Which wave represents atrial depolarization in the given ECG*



vii. *Which enzyme in RBCs help in formation of carbonic acid*

viii. *Name a Y linked gene which is directly inherited from father to son*

SECTION - B

Attempt any EIGHT of the following questions: *[16]*

Q.3. *Define the terms:*

a. *Gross Primary Productivity*

b. *Net Primary Productivity*

Q.4. *What are two types of Chemoreceptors ? Give their locations*

Q.5. *With respect to given coding strand, give the mRNA and the template strand*

5ATGACACGGAGATTACGACACTACTAGTAA3

Q.6. ***Match the Respiratory surface to the organism in which it is found and rewite.***

COLUMN A ***RESPIRATORY SURFACE***	***COLUMN B*** ***ORGANISM***
a. Lungs	*i. Salamander*
b. External gills	*ii. Bird*
c. Internal Gills	*iii. Insect*
d. Trachea	*iv. Fish*

Q.7. *What are two major differences between carbon and phosphorus cycle*

Q.8. *Define pulse. What is Pulse rate higher than and slower than normal called ?*

Q.9. *Compare Thalassemia and Sickle-cell anemia , explain the difference and similarity between them*

Q.10. *Describe any two categories of ecosystem services*

Q.11. *Give limitations of ecological pyramids*

Q.12. *Genetic code has degeneracy, Explain the statement*

Q.13. *Distinguish between Habitat and Niche*

Q.14. $N_{t+1} = N_t + [(B + I) - (D + E)]$
What is B, , D and E in the above equation

SECTION – C

Attempt any EIGHT of the following questions: *[24]*

Q.15 *In some organisms the Female is responsible for determination of sex of offspring, Explain the statement with help of a suitable example.*

Q.16. *Describe two contrivances for self pollination*

Q.17. *Name the IIIrd and IVth ventricles of brain. What connects Lateral ventricles to IIIrd Ventricle and IIIrd ventricle to IVth ventricle*

Q.18. *Describe the structure of nasal chamber*

Q.19. *What is Placenta ? Enlist two hormones secreted by human placenta. Give two functions performed by placenta*

Q.20. *i. Name the dentist nerve*
ii. Name the Xthcranial nerve
iii. Name any two cranial nerve originating from medulla

Q.21. *Complete the following chart regarding population interaction and re-write:*

Sr. No.	Name of interaction	Interaction between
1 .	_____	*Plasmodium and Man*
2	_____	*Leopard and Lion*
3	_____	*Clown fish and Sea-anemone*

Q.22. *Define Linkage Explain its two types*

Q.23. *Enlist the blood sugar maintaining hormones secreted by Islets of Langerhans and explain their roles.*

Q.24. *With respect to replication of DNA answer the following*
i. Enzyme for Unwinding of DNA molecule
ii. Small fragments of DNA formed on lagging template
iii. Enzyme which catalyze synthesis of new complementary strand

Q.25. *Name the following outbreeding devices*
i. The plant bears either male or female flowers
ii. Anthers and stigmas mature at different times in a bisexual flower
iii. A genetic mechanism due to which the germination of pollen on stigma of the same flower is inhibited

Q.26. *What is oxygen dissociation curve. Mention factors which shift the curve to right.*

SECTION - D

Attempt any THREE of the following questions: [12]

Q.27. Match the entries in column 1 with those of column II and rewrite

Column I	Column II
A. Alkali treatment	i. Separation of DNA fragments on gel slab
B. Southern blotting	ii. Split DNA fragments into single strands
C. Electrophoresis	iii. DNA transferred to nitrocellulose sheet
D. PCR	iv. X-ray photography
E. Autoradiography	v. Produce fragments of different sizes
F. DNA treated with REN	vi. Blood
G. Source of DNA	vii. DNA amplification
H. DNA probe	viii. cDNA

Q.28. Define Apomixis Explain the main categories of apomixis.

Q.29. Enlist the three enzymes with their functions, necessary for digestion of lactose .What is acting as inducer in lac operon?

Q.30. Describe the Structure of Graafian follicle with a suitable diagram

Q.31. i. Sketch human eye .
ii. Label the parts Retina , Iris, Cornea, Fovea
iii. Name the photo receptor cells of retina