

Code: A-B 730123-A

I SEMESTER EXAM. - 2023-24

4 x 410

Std.: XII

Sub: BIOLOGY

Marks: 70

Date: 04/11/23

Roll No.: _____

Time: 3 hrs.

General Instructions : The question paper is divided into four sections.

1. **Section - A :** Q No. 1 contains Seven multiple choice types of questions carrying one mark each.
 - i) For each multiple choice type of questions it is mandatory to write the correct answer long with its alphabet. eg. a)/ b)...../ c)...../ d)..... etc. No marks shall be given if ONLY the correct answer or alphabet of the correct answer is written.
 - ii) In case of MCQ, evaluation will be done for 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. 13 are short answer type of questions carrying **two marks** each.
3. **Section - C:** Q. No. 14 to Q. No.19 are short answer type of questions carrying **three marks** each.
4. **Section - D :** Q. No. 20 to Q. No. 23 are long answer type of question 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. Put in sequence _____.
 - a) mammary duct, mammary ampulla, lactiferous duct, mammary tubules
 - b) mammary tubules, mammary ampulla, lactiferous duct, mammary duct
 - c) mammary tubules, mammary duct, mammary ampulla, lactiferous duct
 - d) mammary ampulla, mammary tubules, mammary duct, lactiferous duct
- ii. Diapedesis is performed by _____.
 - a) Leucocytes
 - b) Erythrocytes
 - c) Thrombocytes
 - d) Adipocytes
- iii. A short eustachian tube connects the middle ear to
 - a) External ear
 - b) Internal ear
 - c) Pharynx
 - d) None of the above
- iv. Indian patent allows _____.
 - a) parent patent
 - b) product patent
 - c) process patent
 - d) premier patent
- v. Collip's hormone, birth hormone and sleep hormone are called _____ respectively.
 - a) Thymosin, melatonin, oxytocin
 - b) Parathormone, oxytocin, melatonin
 - c) Prolactin, parathormone, melatonin
 - d) Calcitonin, thymosin, melatonin
- vi. Inter auricular septum has an oval depression called _____.
 - a) fossa navicularis
 - b) fossa incudis
 - c) hypophyseal fossa
 - d) fossa ovalis
- vii. In Zea mays colour and shape of grain shows
 - a) Incomplete linkage
 - b) Complete linkage
 - c) Incomplete sex linkage
 - d) Incomplete sex linkage
- viii. In an Anther, the sequence of its wall layers from inside to outside is _____.
 - a) Epidermis, endothecium, tapetum, endodermis
 - b) Tapetum, endothecium, middle layer, epidermis
 - c) Tapetum, middle layer, endothecium, epidermis
 - d) Epidermis, tapetum, middle layer, endothecium

P.T.O

- ix. Palaeocene epoch falls in which Era ?
 a) Genozoic b) Mesozoic c) Palaeozoic d) Archaeozoic
- x. pBR322 plasmid vector contains the following marker genes
 a) Ampicillin resistant gene
 c) Agrobacterium resistant
 b) Tetracycline resistant
 d) Both a and b

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

- i. How many pollen grains are required to fertilize 20 ovules in a particular carpel?
 ii. In presence of which enzyme in RBCs CO_2 combines with water?
 iii. What is polydipsia?
 iv. Give full form of recombinant protein TPA ?
 v. There are how many linkage group in *Drosophila melanogaster*
 vi. Define Genetic Drift
 vii. Which reflex controls the depth and rhythm of respiration ?
 viii. Which enzyme has been inhibited in Flavr savr tomatoes for increasing shelf life?

SECTION - B**Attempt any EIGHT of the following questions:****16**

- Q3. What is hypertension? Give threshold of hypertension.
 Q4. Identify the human ancestors based on their cranial capacities,
 a. 450 - 600 cc
 b. 900 cc
 c. 1400 cc
 d. 650-800
- Q5. Differentiate between Cranial nerves and Spinal nerves on basis of their -number and functional types
 Q6. Which Palindrome is attacked by enzyme EcoRI ? Name the organism from which EcoRI is obtained.
 Q8. Name the only endocrine gland that stores its hormones. Enlist the hormones produced by this gland.
 Q9. Arrange in packaging order Nucleosome, chromosome, chromatin, solenoid
 Q10. Differentiate between Chasmogamy and Cleistogamy.
 Q11. Human placenta is called Haemochorial, explain with reason.
 Q12. Expand the following acronyms used in biotechnology 1.MAC 2.GMO
 Q13. What is removed during processing of hnRNA? Why mRNA requires no processing in bacteria?
 Q14. Name the outer layer of pollen grain. What substance is it made of?

SECTION-C**Attempt any EIGHT of the following questions****24**

- Q15. Classify the following to the germinal layers from which the following organs develop:
 a. Kidney b. Pineal gland c. Thymus gland
 d. Tongue e. Gonads f. Sweat glands
- Q16. Sketch and label : Graffian follicle
 Q17. Drone of honey bees shows haploid number of chromosomes. Explain with the help of a chart.

Q18. What is the process of invitro amplification of DNA segment known as? Which device is used for it? Name the heat stable DNA polymerase used in the process.

Q19. Name the following as per monocot embryo

- Shield shaped cotyledon
- Protective sheath of plumule
- Protective sheath of radicle.

Q20. Name the enzymes used in lactose metabolism. State their functions.

Q21. Which openings are guarded by the following valves :

- Eustachian valve
- Thebesian valve
- Tricuspid valve

Q22. Give the names and functions of sensory crainial nerves

Q23. COMPLETE THE TABLE AND REWRITE

ANIMALS	CONNECTING LINK BETWEEN
1. Seymouria	_____
2. _____	Fishes and Amphibians
3. _____	Reptiles and Birds

Q24. What do you understand by Autocatylytic functions of DNA ?

Give role of following in same

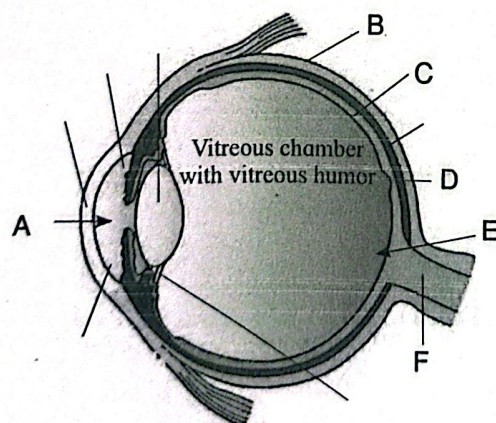
-Helicase

-SSBP

Q25. FILL IN THE BLANKS

_____ helps in the formation of enzyme prothrombinase. This enzyme inactivates _____ and it also converts inactive _____ into its active thrombin. Thrombin converts soluble blood protein _____ into insoluble _____. Fibrin forms a mesh in which _____ and other blood cells are trapped to form the clot

Q26. In the given figure, label the marked A to F



SECTION-D

Attempt any THREE of the following questions :

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Q27. Name the ventricles of brain. Which fluid is filled in the ventricles ? Give two functions of the fluid in the ventricles.

P.T.O

- Q28. Which phenomenon gives 2:1 ratio instead of 3:1 ? Describe with graphical representation.
- Q29. Expand the terms with respect to human infertility :
a. GIFT b. ICSI c. ZIFT d. IUI
- Q30. Explain:
a. Herkogamy b. Dichogamy c. Prepotency d. Heterostyly
- Q31. Identify the given WBCs and give specialized function of each of the given WBC .

