No .of Printed Pages/Questions:05/33

# O.P.JINDALSCHOOL,SAVITRINAGAR

**Annual Examination (2025–26)**

**Class: XI** **MM: 70**

**Subject: Biology(044)** **Time:3Hrs.**

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***General Instructions:***

***All questions are compulsory.***

***(i) SectionAhas16questionsof1markeach;SectionBhas5questionsof2markseach; Section C has 7 questions of 3marks each; Section D has 2 case –based questions of 4 marks each; and Section E has 3 questions of 5 marks each.***

***(ii) There is no overall choice. However, internal choice have been provided in some questions.***

***(iii) Where ever necessary, neat and properly labeled diagrams should be drawn.***

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## SECTION-A

1. The related families are placed together in the same

(a) phylum (b)class

(c)genera (d)order

2. Cyanobacteria belong to the kingdom

(a) protista (b)fungi

(c)plantae (d)monera

3. The metabolic rate of most body tissues is controlled by :

(a)ADH (b) TSH (c) ACTH (d) FSH

4. Which of the following is the site of protein synthesis?

(a)DNA (b) nucleolus

(c)ribosomes (d)chloroplast

5. Resting membrane potential is maintained by a

(a) Hormone (b) Neurotransmitters

(c) Ion pumps (d) All of these

6. Accumulation of uric acid crystals in joints causes :

(a) Tetany (b) Arthiritis

(c)Gout (d) Muscular dystrophy

7. Malphigian body is constituted by

(a) Glomerulus only
(b) Glomerulus and Bowman's capsule
(c) Glomerulus and efferent vessel
(d) Glomerulus, Bowman's capsule and efferent vessel

8. A bivalent of meiosis-I consists of

(a) Two chromatids and one centromere
(b)Two chromatids and two centromere
(c) Four chromatids and two centromere
(d) Four chromatids and four centromere

9. Which of the following condition increases the rate of exchange of respiratory gases?

(a)When the respiratory surface is thick
(b) Respiratory surface is moist
(c)Concentration gradient is low
(d) Pressure of blood flow is low.

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11.New cells arise from

(a) Bacterial fermentation
(b)Regeneration of old cells
(c)Pre-existing cells
(d) Abiotic materials

12. Which of the following develops the greatest pressure on the blood in the mammalian aorta?

(a) systole of the left atrium
(b) diastole of the right ventricle
(c)systole of the left ventricle
(d)diastole of the right atrium

Direction (Q.No.13-16) Assertion–Reasoning type questions. Mark the correct answer as

(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true, but R is not the correct explanation of A
(c) A is true, but R is false
(d) Both A and R are false

13.Assertion : Cyclic phosphorylation synthesizes ATP .
Reason : ATP synthesise in cyclic phosphorylation is not associated with NADPH formation .

14.Assertion (A): Some platyhelminthes are generally called flatworms.

Reason (R): Liver flukes are the example of coelenterata.

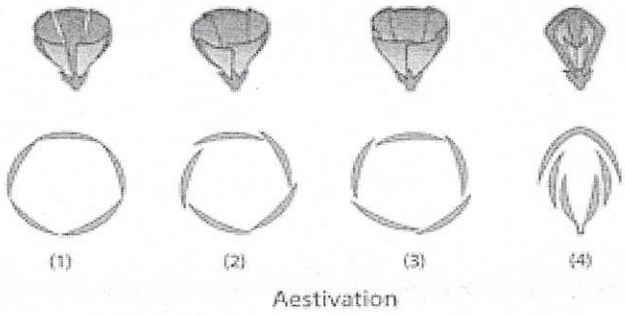
15.Assertion(A) In frogs external fertilization takes place.
Reason(R)Frog is an amphibian.

16. Assertion (A): Cytokinins are present in the highest concentration in fruits and seeds.

Reason (R): Cytokinins are responsible for promoting cell division.

## SECTION-B

17. Identify which type of aestivation is being depicted by 1, 2, 3 and 4.



Aestivation

OR

.(i) What is a stomatal apparatus? Explain briefly. .

(II)What is the epidermal cell modification in plants which prevents water loss?

18.(i)What is the basis of classification of algae?

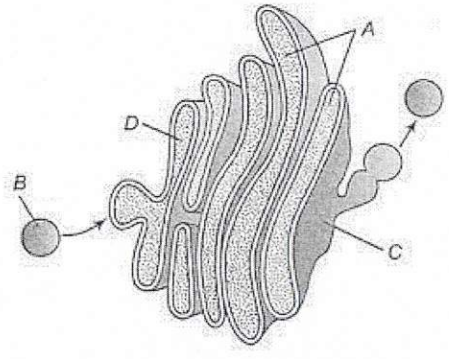
(ii).'Bryophytes are referred to as amphibians of plant kingdom' .Justify the statement.

OR

(i)How useful is the study of the nature of bodycavity (coelom) in the classification of animals?
(ii)How important is the presence of pneumatic bones in aves?

19.Golgi apparatus consist flat, disc-shaped, parallel stacked structure, possess,cis and trans faces.

Observe the figure carefully and answer the following questions.




(i)Identify the labels A,B,C and D.

(ii) What is the function of Golgi apparatus?

20.(i)What is the importance of chromosomal replication during the interphase?

(ii) What is the significance of Meiosis?

21. Draw a well labeled diagram of Human Heart .

OR

Draw a well labeled diagram of Human Brain .

**SECTION-C**

22 . Write the floral formula of solanaceae family and explain its features also.

OR

Explain Prophase 1 of Meiosis 1 with diagram .

23.Explain digramatically Z- scheme .

24.Explain muscle contraction theory .

25. Explain cardiac cycle .

OR

Draw a well labeled diagram of nephron

26. Explain the Digestive System of frog .

OR

(i)Explain the counter current mechanism

(ii) Describe TCA cycle .

27. (i)Name the hormone secreted by the α-cells of Islet of Langerhans

(ii) Name the hormone which involves in regulation of glucose homeostasis.

(iii) What is main difference between hyperglycemia and hypoglycemia?

28. Define a taxon. What is meant by taxonomic hierarchy? Give a flow diagram from the lowest to highest category for a plant and an animal.

OR

Explain the transport of $0_2$ and $C0_2$ between alveoli and tissue with a diagram.

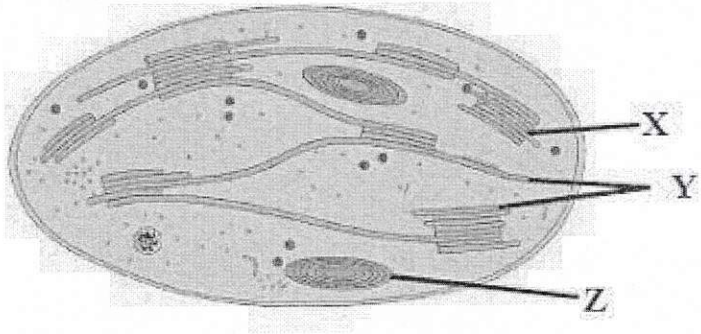
**SECTION-D**

29. Almost all enzymes are proteins. There are some nucleic acids that behave like enzymes. These are called ribozymes. An enzyme like any protein has a primary structure, i.e., amino acid sequence of the protein. An enzyme like any protein has the secondary and the tertiary structure. When you look at a tertiary structure you will notice that the backbone of the protein chain folds upon itself, the chain criss-crosses itself and hence, many crevices or pockets are made. One such pocket is the 'active site'. An active site of an enzyme is a crevice or pocket into which the substrate fits. Thus enzymes, through their active site, catalyse reactions at a high rate. Enzyme catalysts differ from inorganic catalysts in many ways, but one major difference needs mention. Inorganic catalysts work efficiently at high temperatures and high pressures, while enzymes get damaged at high temperatures (say above 40°C). However, enzymes isolated from organisms who normally live under extremely high temperatures (e.g., hot vents and sulphur springs), are stable and retain their catalytic power even at high temperatures (upto 80°-90°C). Thermal stability is thus an important quality of such enzymes isolated from thermophilic organisms.

(i) _____ is the pocket like region of an enzyme into which substrate molecules bind.
(a) Protein site
(b) Co-factors
(c) Coenzyme
(d) Active site

(ii)How active site of enzymes are formed?
(iii) Explain how Enzyme catalysts differ from inorganic catalysts?
(iv) What is ribozymes?

30.Plastids are cell organelles found in plant cell. Dependingupon function it performs ,it is of multitypes some have specific pigments ,thus impart colour to plant, while some store food. They are also called semiautonomousorgan.




(i)Why plastids are called as semi autonomous organelles?
(ii)Identify the labels X and Y .
(iii)Why the lumen of thylakoids are acidic in nature, where as the stroma is alkaline in nature?

**SECTION-E**

31. What is photorespiration and why it is a wasteful process ?

OR

Explain Hatch and Slack pathway with the help of diagram .

32.What is placentation? Describe various types of placentation in plants with diagram.

OR

Describe T.S of a monocot stem with well labeled diagram.

33. During resting potential, the axonal membrane is polarised, indicate the movement of +ve and -ve ions leading to polarisation diagrammatically.

OR

(i) Give a diagrammatic representation of the mechanism of protein hormone action.

(ii) Illustrate the difference between the mechanism of action of a protein and a steroid hormone.

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