

Directorate of Education, GNCT of Delhi

Practice Paper

(2024-25)

Class – XI

Biology (Code: 044)

Time: 3 hours

Maximum Marks: 70

General Instructions :

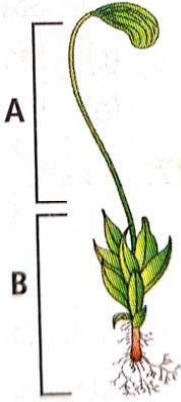
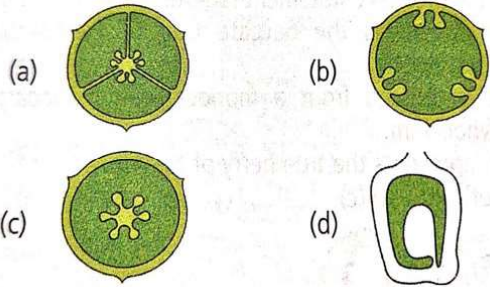
Read the following instructions very carefully and strictly follow them:

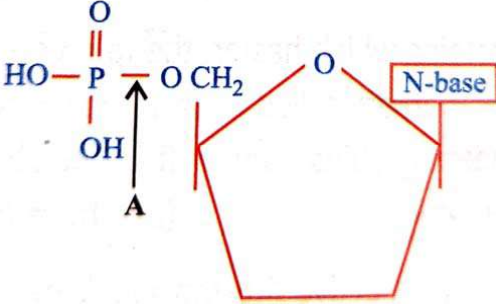
- All questions are compulsory.
- The question paper has five sections and 33 questions.
- Section–A has 16 questions of 1 mark each.
Section–B has 5 questions of 2 marks each.
Section–C has 7 questions of 3 marks each.
Section–D has 2 case-based questions of 4 marks each.
and
Section–E has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions.
A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labeled diagrams should be drawn.

Section – A

Q. No. 1 to 12 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

Q. No	Question	Marks				
1.	<p>The given flow chart represents the hierarchy of various taxonomic categories.</p> <div style="text-align: center;"><pre>graph BT; Species --> Genus; Genus --> A; A --> Order; Order --> B; B --> PhylumDivision[Phylum/Division]; PhylumDivision --> C</pre></div> <p>Identify the missing categories (A, B & C) and select the correct statements regarding these</p> <p>i) A is the taxonomic category which contains A number of related general ii) Examples of category B are Monocotyledonae, Dicotyledonae, Mammalia, etc. iii) C represents the basic unit of taxonomic hierarchy. iv) Examples of category C are Fungi, Monera, Protista, etc.</p> <table border="1"><tr><td>(a) (i) & (ii)</td><td>(b) (iii) & (iv)</td></tr><tr><td>(c) (i), (ii) & (iv)</td><td>(d) (i), (ii), (iii) & (iv)</td></tr></table>	(a) (i) & (ii)	(b) (iii) & (iv)	(c) (i), (ii) & (iv)	(d) (i), (ii), (iii) & (iv)	1
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(c) (i), (ii) & (iv)	(d) (i), (ii), (iii) & (iv)					

Q. No	Question	Marks				
2	Select the option that correctly identifies A and B in the given figure. A. B	1				
						
<table border="1"> <tr> <td data-bbox="342 604 818 667">(a) Sporophyte, Gametophyte</td> <td data-bbox="818 604 1297 667">(b) Gametophyte, Sporophyte</td> </tr> <tr> <td data-bbox="342 667 818 741">(c) Male shoot, Female shoot</td> <td data-bbox="818 667 1297 741">(d) Female shoot, Male shoot</td> </tr> </table>		(a) Sporophyte, Gametophyte	(b) Gametophyte, Sporophyte	(c) Male shoot, Female shoot	(d) Female shoot, Male shoot	
(a) Sporophyte, Gametophyte	(b) Gametophyte, Sporophyte					
(c) Male shoot, Female shoot	(d) Female shoot, Male shoot					
3	Which of the following figures represents a typical placentation as seen in Hibiscus Rosa Sinensis (China rose)?	1				
						
4	Casparian strips are the bands of thickenings present on _____ walls of endodermis	1				
<table border="1"> <tr> <td data-bbox="342 1268 818 1331">(a) radial</td> <td data-bbox="818 1268 1297 1331">(b) tangential</td> </tr> <tr> <td data-bbox="342 1331 818 1404">(c) central</td> <td data-bbox="818 1331 1297 1404">(d) both (a) & (b)</td> </tr> </table>		(a) radial	(b) tangential	(c) central	(d) both (a) & (b)	
(a) radial	(b) tangential					
(c) central	(d) both (a) & (b)					
5	Where is jelly deposited as a covering on the egg of frog?	1				
<table border="1"> <tr> <td data-bbox="342 1514 818 1577">(a) in the oviduct</td> <td data-bbox="818 1514 1297 1577">(b) in the water during fertilization</td> </tr> <tr> <td data-bbox="342 1577 818 1650">(c) in the water after fertilization</td> <td data-bbox="818 1577 1297 1650">(d) in the ovary</td> </tr> </table>		(a) in the oviduct	(b) in the water during fertilization	(c) in the water after fertilization	(d) in the ovary	
(a) in the oviduct	(b) in the water during fertilization					
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6	Select the incorrect pair	1				
<table border="1"> <tr> <td data-bbox="342 1766 818 1839">(a) Cell wall - Structural support</td> <td data-bbox="818 1766 1297 1839">b) Central vacuole - Storage</td> </tr> <tr> <td data-bbox="342 1839 818 1944">c) Amyloplast - Starch storage</td> <td data-bbox="818 1839 1297 1944">d) Plasmodesmata - Protection</td> </tr> </table>		(a) Cell wall - Structural support	b) Central vacuole - Storage	c) Amyloplast - Starch storage	d) Plasmodesmata - Protection	
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Q. No	Question	Marks				
7	What does A represent in the given diagram of a nucleotide? <div style="text-align: center; margin: 10px 0;">  </div>	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) Glycosidic bond</td> <td style="width: 50%; padding: 5px;">b) Phosphate bond</td> </tr> <tr> <td style="padding: 5px;">c) Ester bond</td> <td style="padding: 5px;">d)) Ionic bond</td> </tr> </table>		(a) Glycosidic bond	b) Phosphate bond	c) Ester bond	d)) Ionic bond	
(a) Glycosidic bond	b) Phosphate bond					
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8	During karyokinesis, the spindle fibers get attached to condensing chromosome at a highly differentiated- region. This region is called as –	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) Chromomere</td> <td style="width: 50%; padding: 5px;">b) Chromocentre</td> </tr> <tr> <td style="padding: 5px;">c) Centriole</td> <td style="padding: 5px;">d)) Kinetochore</td> </tr> </table>		(a) Chromomere	b) Chromocentre	c) Centriole	d)) Kinetochore	
(a) Chromomere	b) Chromocentre					
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9	Low temperature treatment to speed up the process of flowering is referred to as –	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) Photoperiodism</td> <td style="width: 50%; padding: 5px;">b) Vernalisation</td> </tr> <tr> <td style="padding: 5px;">c) Thermoperiodism</td> <td style="padding: 5px;">d) Hydroponics</td> </tr> </table>		(a) Photoperiodism	b) Vernalisation	c) Thermoperiodism	d) Hydroponics	
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10	The exchange of gases in the alveoli of the lungs takes place by	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) Passive transport</td> <td style="width: 50%; padding: 5px;">b) Active transport</td> </tr> <tr> <td style="padding: 5px;">c) Osmosis</td> <td style="padding: 5px;">d) Simple diffusion</td> </tr> </table>		(a) Passive transport	b) Active transport	c) Osmosis	d) Simple diffusion	
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c) Osmosis	d) Simple diffusion					
11	Refer to the given reaction.. <div style="text-align: center; margin: 10px 0;"> $RuBP + O_2 \xrightarrow[\text{oxygenase}]{RuBP} \text{Phosphoglyceric acid} + \text{Phosphoglycolic acid}$ </div>	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) C3 pathway</td> <td style="width: 50%; padding: 5px;">b) C4 pathway</td> </tr> <tr> <td style="padding: 5px;">c) C2 pathway</td> <td style="padding: 5px;">d) Glycolysis</td> </tr> </table>		(a) C3 pathway	b) C4 pathway	c) C2 pathway	d) Glycolysis	
(a) C3 pathway	b) C4 pathway					
c) C2 pathway	d) Glycolysis					
12	Electron transport chain (ETC) is a set of _____	1				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">(a) Seven, inner</td> <td style="width: 50%; padding: 5px;">b) Six, inner</td> </tr> <tr> <td style="padding: 5px;">c) Seven, outer</td> <td style="padding: 5px;">d) Six, outer</td> </tr> </table>		(a) Seven, inner	b) Six, inner	c) Seven, outer	d) Six, outer	
(a) Seven, inner	b) Six, inner					
c) Seven, outer	d) Six, outer					

	<p>Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer</p> <p>these questions selecting the appropriate option given below:</p> <p>a) Both A and R are true, and R is the correct explanation of A. b) Both A and R are true, and R is not the correct explanation of A. c) A is true, but R is false. d) A is False, but R is true.</p>	
Q. No	Question	Marks
13	<p>Assertion (A) – The most widely used compound as source of ethylene is ethephon.</p> <p>Reason (R) – Ethephon hastens fruit ripening in tomatoes and apples and accelerates abscission in stems and leaves.</p>	1
14	<p>Assertion (A) – Alveoli are the primary sites for exchange of gases.</p> <p>Reason (R) – All factors in our body are favorable for diffusion of O₂ from alveoli to tissues and that of CO₂ from tissues to alveoli.</p>	1
15	<p>Assertion (A) – Fibrins are informed by the conversion of inactive fibrinogens in the plasma by the enzyme thrombin.</p> <p>Reason (R) – Plasma without fibrinogen and blood corpuscles is called serum.</p>	1
16	<p>Assertion (A) – Ulna is longer than radius.</p> <p>Reason (R) – It has Olecranon process.</p>	1

Section – B

Q. No	Question	Marks
17	What is the scope of Systematics?	2
18	<p>i) What are Polysome?</p> <p>ii) Mention the important role played by the ribosomes of a polysomes.</p> <p style="text-align: center;">OR</p> <p>How bacteria can be classified into two groups on the basis of gram stain?</p>	1 1 2
19	Write down the two features of Metaphase.	2
20	Mention the phases of blood pressure, when are they observed?	2
21	<p>Name the disorders of muscular and skeletal system from the following statements: -</p> <p>i) Auto immune disorder affecting neuromuscular junction leading to fatigue, weakening and paralysis of skeletal muscle.</p> <p>ii) Inflammation of joints due to accumulation of uric acid crystals.</p>	1 1

Section – C

Q. No	Question	Marks
22	i) Name the protists that behave both as autotrophs as well as heterotrophs.	1
	ii) Explain how Diatoms are the chief producers in the oceans.	2
23	What are the sex organs in bryophytes are called? Also explain why they are called amphibians of the plant kingdom?	3
24	i) How does the central nervous system differ from peripheral nervous system in frog?	1
	ii) State the significance of webbed digits in frogs.	2
	OR	
	i) We know frogs are poikilothermic animals. What are the adaptations that frogs have to maintain their body temperature?	2
	ii) Which finger of the male frog develops into nuptial pad?	1
25	Mention the term for each of the following statement - I) The period between two successive mitotic divisions ii) Point at which two sister chromatids are held together iii) Phase in the cell cycle when protein and RNA are synthesized iv) Nuclear division v) Chromosomes get separated at which phase? vi) Centrioles (in animal cell) replicate at which phase	(½ x 6)
26	RuBisCo enzyme, the most abundant enzyme in the world, explain why?	3
	OR	
	i) Dark reactions are dependent on light reactions yet are called dark reactions. Give the reason.	2
	ii) Which compound is meant for donating hydrogen to carbon dioxide in Calvin cycle.	1
27	Draw a simple diagram of human kidney and label any six parts. FOR VISUALLY CHALLENGED STUDENTS Describe the process of urine formation in the nephron through filtration, re absorption and secretion.	3
28	i) Compare the resting potential and action potential	3
	ii) The Schwann cells around the axon help to classify in various types. Name them	

Section – D

Q. No	Question	Marks
29	<p>Read the following passage and answer the questions that follow: -</p> <p>Ria observed Corolla composed of brightly colored petals. The shape and color of Corolla vary greatly in plants. She also found Calyx, Corolla that was either united or free. She noticed the arrangement of sepals or petals. In floral bud with respect to the other members of the same whorl.</p> <p>i) What do you understand by gamopetalous and polypetalous?</p> <p>ii) The mode of arrangement of sepals or petals are called _____</p> <p>iii) Petals are usually brightly colored meant for</p> <p style="margin-left: 40px;">a) Fragrance b) Attract insects c) Colorful flower d) Whorled</p> <p>iv) If the margins of sepals or petals overlap one another but not in any particular direction what is the arrangement called?</p> <p style="text-align: center;">OR</p> <p>What is called Vexillary?</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>
30	<p>Hypothalamus regulates a wide spectrum of body functions. It contains several groups of neuro secretory cells called nuclei which produce hormones. These hormones regulate the synthesis and secretion of pituitary hormones. The hormones produced by hypothalamus are of two types releasing hormones and inhibiting hormones.</p> <p>i) What does inhibiting hormones inhibit?</p> <p>ii) Hypothalamic hormone called</p> <p style="margin-left: 40px;">a) Growth hormone b) Luteinizing hormone c) Gonadotrophin releasing hormone d) Melanocyte stimulating hormone</p> <p>iii) Which gland is under the direct regulation of hypothalamus? a) Anterior pituitary b) Thyroid c) Pineal d) Pancreas</p> <p>iv) Hypothalamus is the basal part of?</p> <p style="margin-left: 40px;">a) Cerebellum, Forebrain b) Cerebrum, Diencephalon c) Pituitary gland d) Diencephalon, Forebrain</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p>

Section – E

Q. No	Question	Marks																								
31	i) Write the scientific name of Roundworm and Filaria worm	1																								
	ii) Write any two distinguishing features between Aschelminthes and Platyhelminthes	2																								
	iii) Name the member of Platyhelminthes that have regeneration capacity	1																								
	iv) Mention the important role played by Flame cells	1																								
	OR																									
	i) How are pneumatic bones and air sacs important in Aves?	2																								
	ii) Complete the following	3																								
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">PHYLUM</th> <th style="width: 25%;">EXCRETORY ORGAN</th> <th style="width: 25%;">CIRCULATORY ORGAN</th> <th style="width: 25%;">RESPIRATORY ORGAN</th> </tr> </thead> <tbody> <tr> <td>ARTHROPODA</td> <td>MALPIGHIAN TUBULES</td> <td>-----</td> <td>LUNGS/GILLS/ TRACHEAL SYSTEM</td> </tr> <tr> <td>-----</td> <td>NEPHRIDIA</td> <td>CLOSED</td> <td>-----</td> </tr> <tr> <td>-----</td> <td>METANEPHRIDIA</td> <td>-----</td> <td>SKIN/ PARAPODIA</td> </tr> <tr> <td>-----</td> <td>-----</td> <td>-----</td> <td>-----</td> </tr> <tr> <td>AMPHIBIA</td> <td>CLOSED</td> <td>LUNGS</td> <td>-----</td> </tr> </tbody> </table>	PHYLUM	EXCRETORY ORGAN	CIRCULATORY ORGAN	RESPIRATORY ORGAN	ARTHROPODA	MALPIGHIAN TUBULES	-----	LUNGS/GILLS/ TRACHEAL SYSTEM	-----	NEPHRIDIA	CLOSED	-----	-----	METANEPHRIDIA	-----	SKIN/ PARAPODIA	-----	-----	-----	-----	AMPHIBIA	CLOSED	LUNGS	-----	
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32	What are nucleic acids? Describe the structure of DNA	5																								
	OR																									
	i) Mention the principle on which the enzymes work	2																								
ii) Explain briefly the secondary and tertiary structure of protein	3																									
33	i) Name the enzyme which converts sugar into glucose and fructose	1																								
	ii) How many molecules of ATP are produced by the oxidation of one molecule of FADH ₂	1																								
	iii) Write the name of the end product of glycolysis	1																								
	iv) Mention two steps of glycolysis in which ATP is utilized	2																								
	OR																									
	Explain electron transport system	5																								