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HBSE MODEL PAPER 2024



Practice Papers

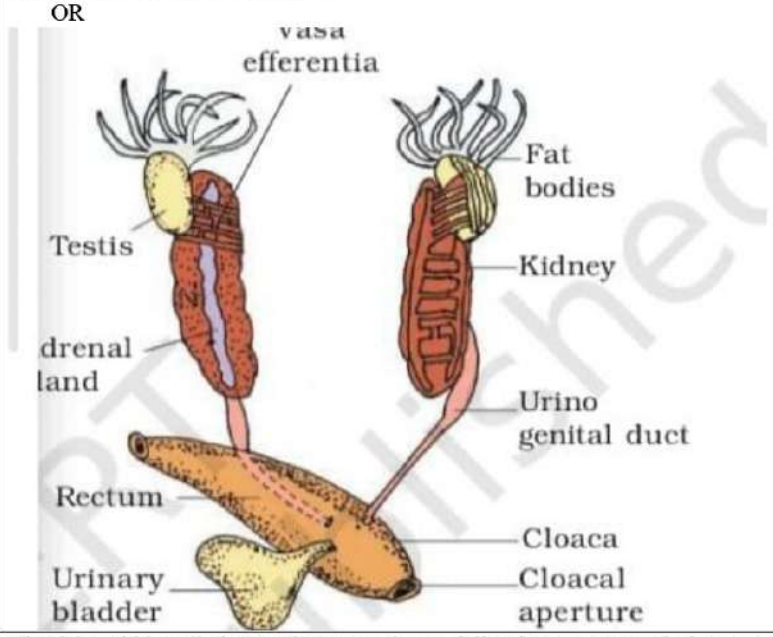
MODEL PAPERS

Marking Scheme

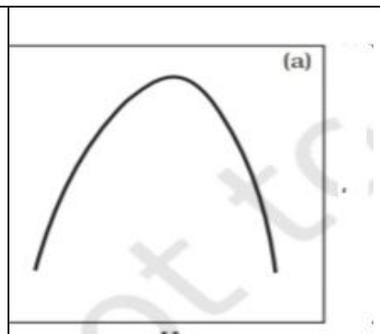
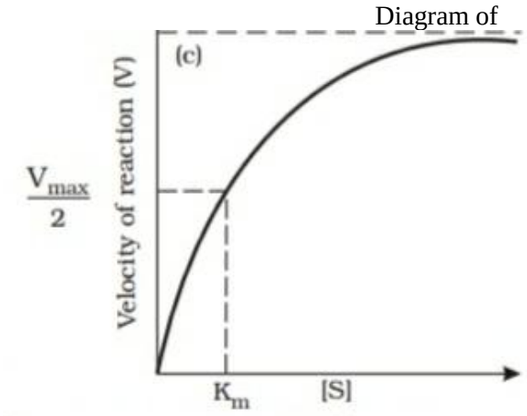
ANSWER KEY

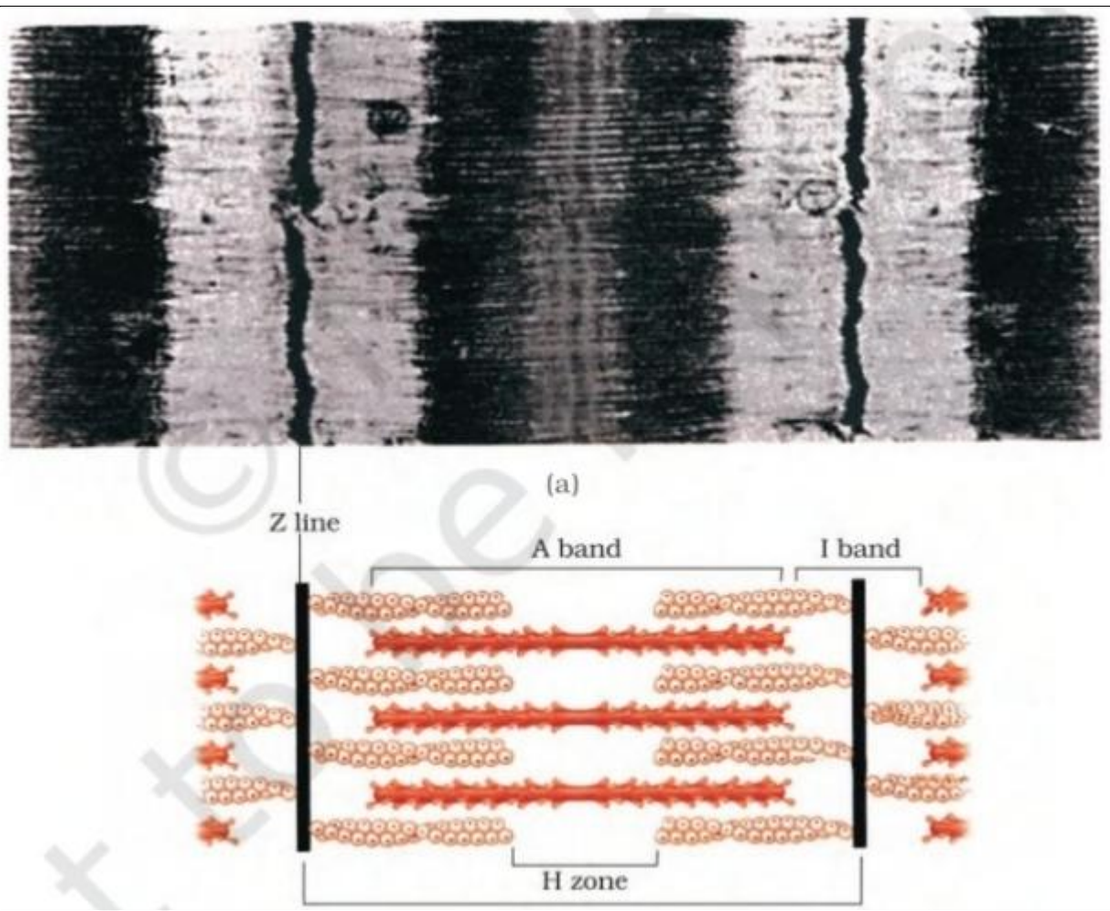
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Marking Scheme
Class-XI
BIOLOGY (SUBJECT CODE —865)

Q.No	Expected Answers/ Value Points	Marks
	SECTION – A	
1	(a) Solanaceae	1
2	(d)Primata	1
3	(c) 1969	1
4	(b)lichens	1
5	(a) Echinoderms	1
6	(d)Aquatic and dioecious	1
7	(d) All the above	1
8	(d) Parenchyma	1
9	(d) All the above	1
10	(d) All the above	1
11	(a)Lysosomes	1
12	(b) Heteropolymer	1
13	(b) Zyogomycetes	1
14	(b) Peridophyte	1
15	A	1
16	C	1
17	A	1
18	A	1
Section-B		
19	Two modes of respiration in frog are as follows: Cutaneous respiration in water 1 Pulmonary respiration on land 1 OR  .5*4=2 for each correct labelling.	2
20	Abscisic acid is called stress hormone due to following responses during stress conditions: 0.5 Promotes seed dormancy 0.5 stimulates stomata closure during water stress 0.5 increases tolerance of plants to various kinds of stresses 0.5	2
21	***Vital Capacity*** (i)Vital capacity is the volume of air which can be exhaled after a maximum inspiration. (ii)It includes: Vital Capacity=ERV+TV+IRV ***Total Lung Capacity*** Total Lung Capacity is the volume of air in the lungs after maximum inspiration. 1 It includes: Total lung capacity=RV+ Vital capacity 1	2
22	(i) Resting Potential is the potential difference across the resting membrane Action Potential is the potential difference across the membrane on generation of impulse 1 (ii) During resting potential, membrane is more permeable to K+ ions as compared to Na+	

	During action potential, membrane is more permeable to Na+ ions as compared to K+ 1	2
23	She will categorize by observing the vascular bundles situated in following conditions: (i)Scattered in monocot stem Arranged in ring in dicot stem 1 (ii) Multicellular epidermal hairs are observed over the epidermis in monocot stem Multicellular epidermal hairs are not observed over the epidermis in monocot stem OR Parenchyma:-Living cells, Thinwalled with intercellular space. 1 Collenchyma:- Thick walled living no intercellular space. 1	2
24	Sexual reproduction in fungi takes place in adverse environmental conditions with the help of two mating thallus . 0.5 The different steps are: Plasmogamy: It is the fusion of protoplasm 0.5 Karyogamy: It refers to fusion of nucleus 0.5 Meiosis: In zygote, it involves cell cycle leading to nuclear division 0.5	2
25	Protonemal cell of moss: n, 0.5 Leaf cell of moss: n, 0.5 Prothallus cell of fern: n, 0.5 Gemma cup cell of marcantia: n, 0.5	2
	Section- C	
26	Three main features of Arthropods are as follows: (i)Exoskeleton made up of chitin1 (ii)Jointed legs 1 (iii)Compound eyes 1 Or any other relevant character	3
27	Inflorescence can be defined as arrangement of flowers on the flowering axis. It comprises complete flower head of a plant, including stem, stalk, bract and flower. Inflorescence is group or cluster of flowers like sunflower, marigold attached to a stem. 1 Racemose inflorescence: a) unlimited growth of shoot apex, b) acropetal arrangement of flowers Cymose inflorescence: a) limited growth of shoot apex, b) basipetal arrangement of flowers OR 1+1+1  On the basis of insertion of pistil and other floral organs flowers can be hypogynous, perigynous and epigynous.	3

28	 **Figure 9.7** Effect of cha  Diagram of  Diagram, showing Effect of pH on Enzymatic Activity 1 Diagram, showing Effect of temperature on Enzymatic activity 1 Diagram, showing Effect of substrate concentration on Enzymatic Activity 1	1+1+ 1=3
29	Skeletal muscle is composed of bundles of elongated muscle fibres**.** These are cylindrical and muti nucleated. Skeletal muscle fibre shows a prominent banding pattern. The banding pattern has cross-striations of alternating light and dark bands. The light bands are divided by a dark transverse line which is also called a z-line. Between two Z lines is found one functional sub unit which is known as sarcomere.	1 2



30 | The hormones released by Pancreas, Thyroid and Ovary are as follows: | 3

Pancreas: Insulin, Glucagon 1

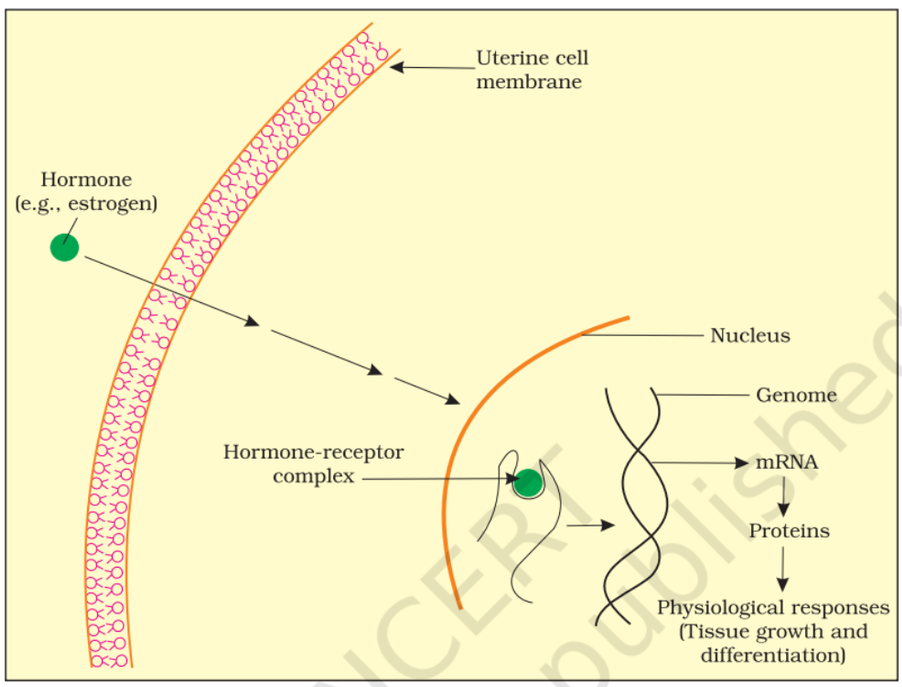
Thyroid: T3, T4 1

Ovary: Estrogen, Progesterone 1

OR

Diagrammatic representation of steroid hormone's mechanism of action.

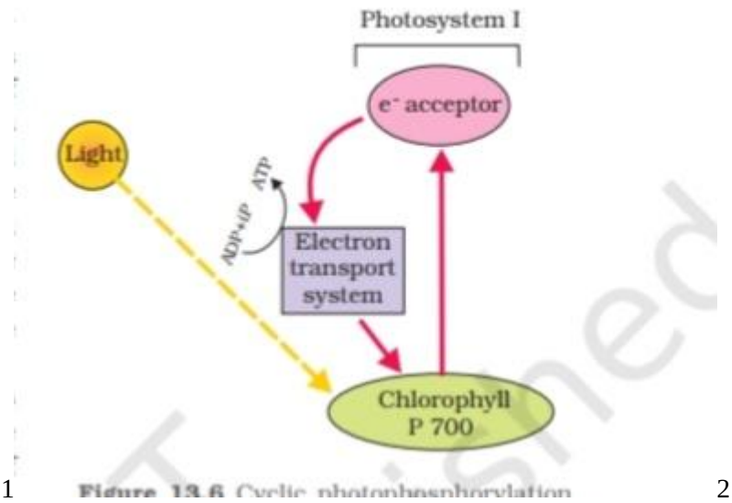
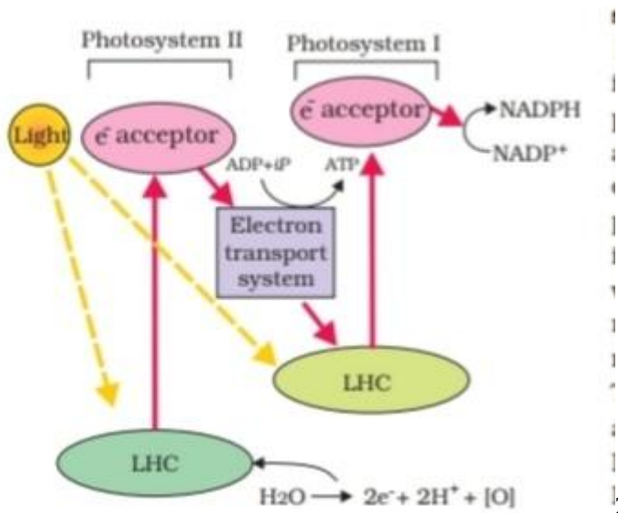
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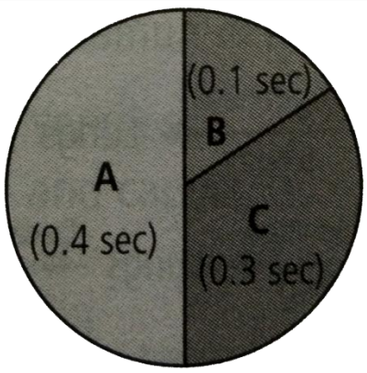


31 | Differences between Prokaryotic and Eukaryotic cells:

1 | a) Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are prokaryotic. 0.5

b) Eukaryotic cells have membrane bound organelles like endoplasmic reticulum (ER), the Golgi complex, lysosomes, mitochondria, microbodies and vacuoles. The prokaryotic cells lack such membrane bound organelles. 0.5

2 3	Cytoplasm 1 a)Bacteria is prokaryotic because it has no membrane bound nucleus Genetic material is scattered in cytoplasm c) Prokaryotic cell donot have membrane bound organelles like endoplasmic reticulum (ER), the Golgi complex, lysosomes, mitochondria, 2 microbodies and vacuoles OR The names four membrane bound organelles are as given below: a) Nucleus, b) ER, c) Lysosomes, d) Vacuole	4
32	1 Oxidative Decarboxylation: Removal of carbon along with oxidation i.e formation of acetyl coenzyme A from pyruvic acid 1 2 3 NADH2and 1FADH2 1 3 3 and 4 carbon atoms respectively Or Two reactions in the cycle can be named as: a) Decarboxylation b) Regeneration, 2	4
33	Meaning of light reaction: Light reaction is light dependent synthesis of ATP and NADPH. It involves cyclic and acyclic photophosphorylation.1 Different Modes of Light reactions can be explained through following diagrams:  1 Figure 13.6 Cyclic photophosphorylation 2  2 OR Five differences between C3 and C4 Plants are as follows:	5

		Characteristic	**C3 plants**	**C4 plants**	
		Meaning	In dark reaction of Photosynthesis process C3 plants use the C3 pathway or Calvin cycle	In dark reaction of Photosynthesis process C4 plants use the C4 pathway or Hatch-Slack Pathway	
		Name of favourable Season	Cool-season plants	Warm-season plants	
		Product	3 carbon compound (Phosphoglyceric acid)	4 carbon compound (Oxaloacetic acid)	
		Kranz anatomy	Absent	Present	
		Optimum temperature	Extremely low.	High.	
				1*5	
34	 Diagram of Cardiac Cycle 2 Details of Cardiac cycle: Cardiac cycle consists of Joint diastole of atria and ventricles 1 Atrial systole, Ventricular systole with atrial diastole 1 Ventricular diastole Total time of cardiac cycle is 0.8 seconds 1 OR Connective tissue is one which connects body systems. Blood is one example which has an extra-cellular matrix called plasma, with red blood cells,1 white blood cells, and platelets floating in it. The details are as follows: Plasma: 90-92 water and protein 1 Formed Elements: The three classes of formed elements are the erythrocytes also known as red blood cells, leukocytes also known as white blood cells, and the thrombocytes also known as platelets. Erythrocytes: Without nucleus, average life span 120 days 1 Leukocytes: Granulocytes and Agranulocyte 1 Thrombocytes: A tiny, disc-shaped piece of cell that is found in the blood forming blood clots to stop flow. 1			5
35	Mitosis: a) Occurs in somatic cells b) daughter cells are identical c) no crossing over d) short process				

	e) from one parent cell two daughter cells are produced Meiosis: a) Occurs in germinal cells b) variation in daughter cells c) crossing over is there d) long process, from one daughter cell e) four daughter cells are produced 1*5 OR The prophase I of meiosis has following stages with respective details: Leptotene: This is the beginning phase of prophase-I. It is characterised by the condensation of the chromosomes. Zygotene: Homologous chromosomes start pairing up, known as the synapsis. The synaptonemal complex starts building up. Bivalent chromosomes appear. Pachytene: Non-sister chromatids of one homologous pair of chromosomes exchange their chromosomal parts. This process is known as crossing over. Chiasmata is the attachment point of the crossing-over. Diplotene: The crossing-over completes. Diakinesis: The homologous chromosomes separate. Synaptonemal complex disappears. The nuclear membrane disappears. 1*5	5