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HBSE MODEL PAPER 2024



Practice Papers

MODEL PAPERS

Marking Scheme

ANSWER KEY

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Class 11th

Subject- Biology

Maximum marks 70 Time allowed 3hrs

General instructions

All questions are compulsory

The question paper has five sections and 35 questions .

All questions are compulsory

Section A has 18 questions of one mark each

Section B has 7 questions of 2 marks each

Section C has 5 questions of 3 marks each

Section D has two case study based questions of 4 marks

Section E has three questions of 5 marks each

There is no over all choice however internal choice have been provided in some questions student has to attempt only one of the alternative questions

Wherever necessary draw properly labelled diagrams

Section A

1 Solanum , Petunia and Datura are placed in the family:

a) Solanaceae

b)Fabaceae

c)Liliaceae

d)Cruciferae

2. The order of Homo sapien is

a) Carnivora

b)Diptera

c) Poales

d)Primata

3 .The five kingdom classification was given in the year

a)1979

b)1971

c)1969

d)1970

4. The first colonizers on rocks are

a) Mosses

b)Lichens

c) both a&b

d) Sphagnum

5). Water vascular system is the characteristic of

a) Echinoderms

b)Porifers

c)Mollusca

d)Coelentrata

6. Nereis is :

(a) Aquatic

(b) Monoecious

c) Dioecious

d) both a&c 1

7. Alternate type of Phyllotaxy where a single leave arise at each node in alternate manner is found in

a) China rose plant

b) Mustard plant

c) Sunflower plant

d) all the above

8) The living component in xylem tissue is

a) Trachieds

b) Vessels

c) Fibres

d) Parenchyma

9) Stele includes

a) Pericycle

b) Vascular bundle

c) Pith

d) All of the above

10. Inclusion is a unique feature of :

(a) Bacteria

(b) Virus

c) PPLO

(d) All of the above

11. Endomembrane system includes

a) lysosomes

b) Mitochondria

c) Chloroplast

d) Ribosomes

12.Protein is a

a)Homopolymer

b) Hetero polymer

c) Mixed polymer

d) both a and b

13 Rhizopus belongs to

a) Phycomycetes

b)Zygomycetes

c) Deutromycetes

d) Ascomycetes

14 Equisetum is :

a)Bryophyte

b) Pteridophyte

c)Angiosperm

d)Gymnosperm

Assertion reason type questions

These questions consists of two statements each printed as assertion and reason while answering these questions you are required to choose any one of the following four responses

A. If both assertion and reason are true and reason is correct explanation of assertion

B. If both assertion and reason are true but reason is not correct explaination of assertion

C if assertion is true but reason is false

D both assertion and reason are false

15 Assertion: Glycolysis takes place in cytoplasm and produce only 2ATPand 2NADH

Reason: Glycolysis is anaerobic process and cannot oxidize the substrate fully

16 Assertion: Hemoglobin is an oxygen career

Reason: oxygen binds as O2 to Fe of hemoglobin

17Assertion: RBC production is regulated by kidney

Reason: erythropoietin reaches red bone marrow

18Assertion: tubular secretion is important in marine fishes and desert amphibians

Reason: in marine fishes and desert amphibians nephrons are a glomerular

Section -B

19 Describe the different modes of respiration in frog.

OR

Make labelled diagram of urinogenital system of frog 2

20 Why abscisic acid is called stress hormone? 2

21 Distinguish between vital capacity and total lung capacity 2

22 Compare resting potential and action potential 2

23 Pallavi has cut a transverse section of young stem of a plant from her school and observed it under microscope.How she can ascertain whether it is monocotstem or dicot stem

OR

Write features of any two types of simple tissues. 2

24. How fungi reproduce sexually,Explain it 2

25. Mention the ploidy of the following : Protonemal cell of a moss, ,leaf cell of a moss, Prothallus cell of a fern, Gemma cell in Marchantia.

Section-C

26 Write the unique features of Arthropods . 3

27 How infloresence is different from flower ?Write difference between racemose and cymose infloresence?

Or

Explain hypogynous,epigynous and perigynous types of flowers 3

28 Graphically show the effect of change PH,Temperature and concentration on activity of enzyme. 3

29 . With the help of diagram describe structure of skeletal muscle 3

30 List the hormones released by Pancreas,Thyroid,Ovary 3

OR

Diagrammatically represent the mechanism of action of the mechanism of steroid hormone.

SECTION D

The following questions are case based questions.Read the cases carefully and answer the questions that follow

31 Cells that have membrane bound nuclei are called eukaryotic whereas cells that lack a membrane bound nucleus are prokaryotic. In both prokaryotic and eukaryotic cells, a semi-fluid matrix called cytoplasm occupies the volume of the cell. The cytoplasm is the main arena of cellular activities in both the plant and animal cells. Various chemical reactions occur in it to keep the cell in the „living state". Besides the nucleus, the eukaryotic cells have other membrane bound distinct structures called organelles like the endoplasmic reticulum (ER), the golgi

complex, lysosomes, mitochondria, microbodies and vacuoles. The prokaryotic cells lack such membrane bound organelles.

1. Write two differences between prokaryotic and eukaryotic cells. 1

2. Mention the location for various metabolic activities. 1

3.(a) State whether bacterial cell is prokaryotic or eukaryotic justify

OR

(b) Name four membrane bound organelles 2

32 "The TCA cycle starts with the condensation of acetyl group with oxaloacetic acid (OAA) and water to yield citric acid.Before participating in the TCA cycle pyruvic acid enters the mitochondrion. Here it is decarboxylated and the remaining 2-carbon fragment is combined with a molecule of coenzyme A to form acetyl-CoA. This reaction is an oxidative decarboxylation process and produces H+ ions and electrons along with carbon dioxide. The reaction is catalysed by the enzyme citrate synthase and a molecule of CoA is released. Citrate is then isomerised to isocitrate. It is followed by two successive steps of decarboxylation, leading to the formation of α-ketoglutaric acidand then succinyl-CoA. In the remaining steps of citric acid cycle, succinyl-CoA is oxidised to OAA allowing the cycle to continue. During the conversion of succinyl-CoA to succinic acid a molecule of GTP is synthesised. This is a substrate level phosphorylation. In a coupled reaction GTP is converted to GDP with the simultaneous synthesis of ATP from ADP. Also there are three points in the cycle where NAD+ is reduced to NADH + H+ and one point where FAD+ is reduced to FADH2. The continued oxidation of acetyl CoA via the TCA cycle requires the continued replenishment of oxaloacetic acid, the first member of the cycle. In addition it also requires regeneration of NAD+ and FAD+ from NADH and FADH2 respectively.

1.What is oxidative decarboxylation give example 1

2.How many any NADH2 and FADH2 formed in this cycle 1

3.How many carbons are there in Pyruvic acid and OAA

OR

Name any two types of reaction occurring in the above process 2

SECTION E

33 What is light reaction explain the different modes of light reaction in plants

OR

Write five differences between C3 and C4 plants. 5

34 . With the help of labelled diagram of human explain the cardiac cycle

OR

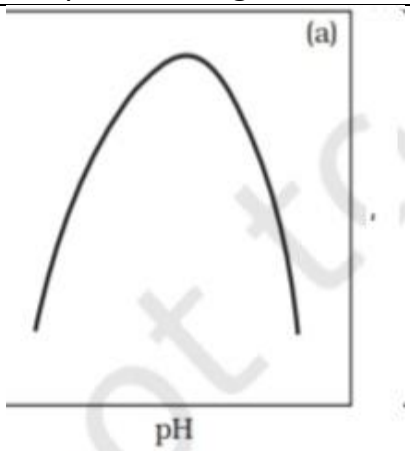
Explain special connective tissue consisting of fluid Matrix, plasma and formed elements 5

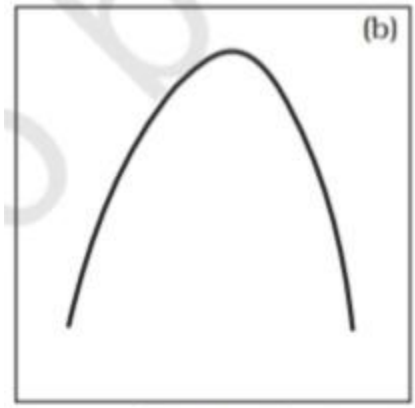
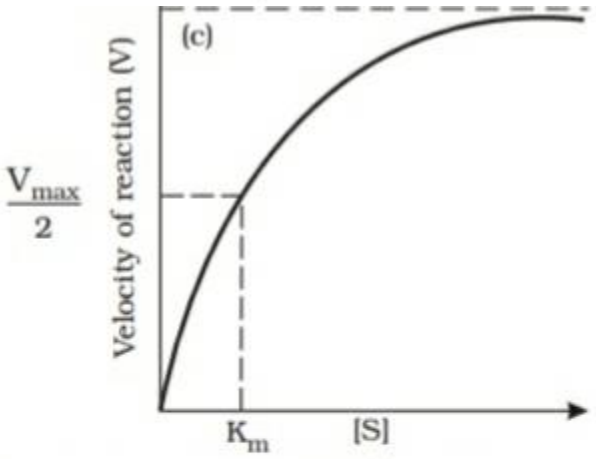
35List five differences between mitosis and meiosis 5

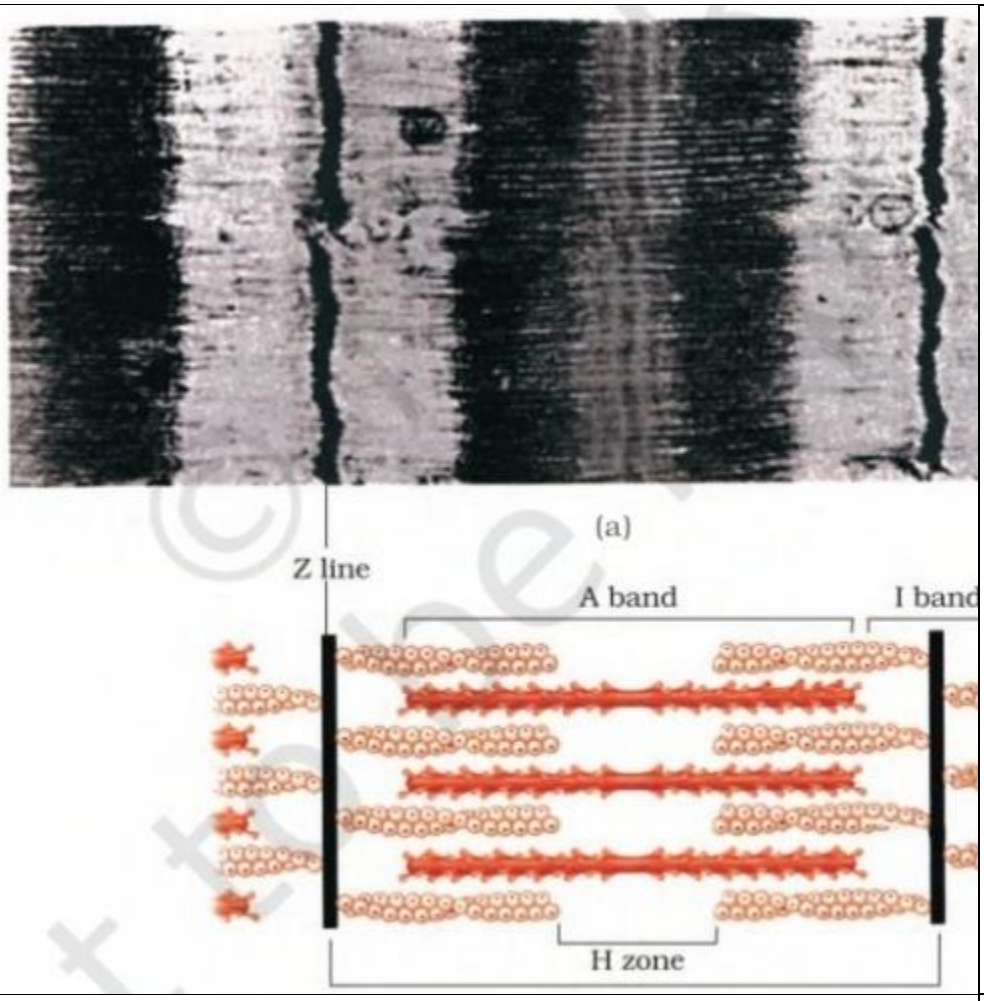
OR

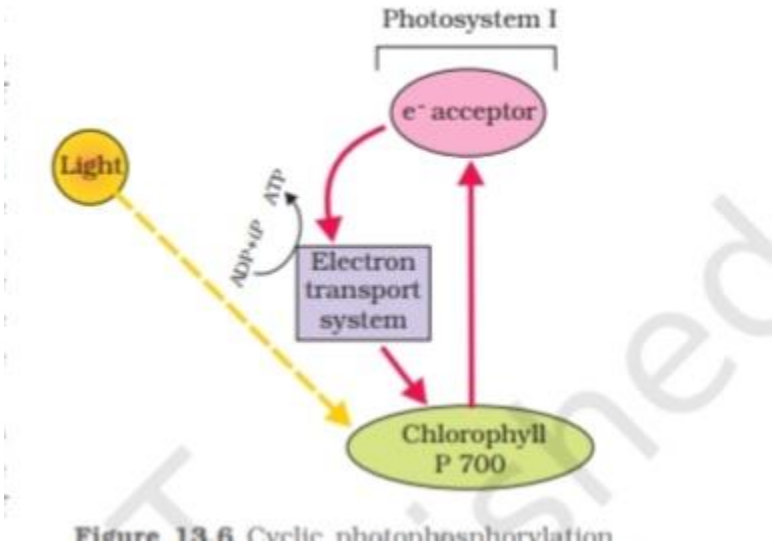
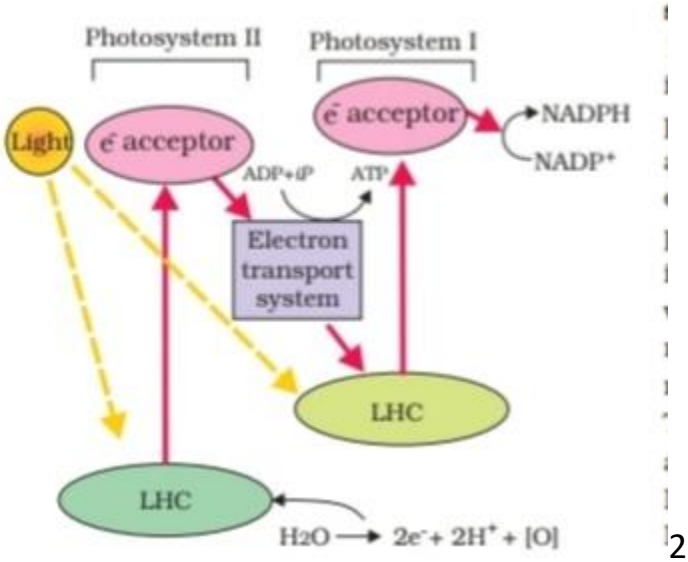
Explain the process of prophase 1 in meiosis 1 with special reference to crossing over

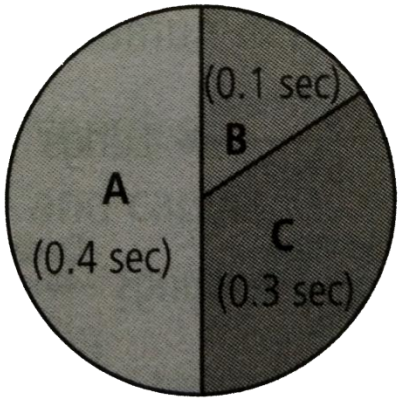
Q N O	EXPECTED ANSWERS/ VALUE POINTS	MARKS
	SECTION – A	
1	(a) Solanaceae	1
2	(d) All the above	1
3	(c) 1969	1
4	(b)lichens	1
5	(a) Echinoderms	1
6	(d)Aquatic and dioecious	1
7	(d) All the above	1
8	(d) Parenchyma	1
9	(d) All the above	1
10	(d) All the above	1
11	(a)Lysosomes	1
12	(b) Heteropolymer	1
13		
14		
15	A	1
16	C	1
17	A	1
18	A	1
17	SECTION B Cutaneous respiration in water Pulmonary respiration on land	1 +1
18 8	Inhibits plant growth,inhibitor of plant metabolism,inhibits seed germination,stimulates stomata closure,increases tolerance of of plants to various kinds of stresses(ANY TWO CAN BE CONSISDERED)	1+1
19	Vital Capacity=ERV+TV+IRV Total lung capacity=RV+Vital capacity	1+1
20	Resting Potential=Potential difference across the resting membrane	1+1

	Action Potential =Potential difference across the membrane on generation of impulse	
21	By observing the vascular bundles Scattered in monocot stem Arranged in ring in dicot stem OR Parenchyma:thin walled isodiametric,closely packed or very less intercellular space,Collenchyma or Sclerenchyma with features	1+1\2+1\2=2
22	SECTION C Plasmogamy Karyogamy Meiosis in zygote	1+1+1=3
23	Protonemal cell of moss: n,PEN :3n,leaf of moss : n,prothallus of fern :n,gemma cell of marcantia :n,meristem cell of monocot :2n	
24	Chitinous exoskeleton,variety of respiratory organs and variety in excretory organs	1+1+1=3
25	Inflorescence is group of flowers like sunflower,marigold Racemose inflorescence : Unlimited growth of shoot apex,acropetal arrangement of flowers Cymose inflorescence :Shoot tip terminates into flower,limited growth of shoot apex,basipetal arrangement of flowers	1+2=3
26	 Figure 9.7 from NCERT Book **Figure 9.7** Effect of cha	1+1+1=3

	 	
27	Fig 20.2 (a) Fig 20.2 (b)	1 2

		
28	Pancreas :insulin,glucagaon Thyriod:T3,T4 Ovary:estrogen,progesterone OR Figure 22.5 (b)	1+1+1=3
29	Any two difference between prokaryotic and eukaryotic cell Cytoplasm Prokaryotic cell and any one feature of prokaryotic cell OR Nucleus,ER,Lysosomes,Vacoule etc	1 1 2
30	Removal of carbon along with oxidation i.e formation of acetyl coenzyme A from pyruvic acid 3 NADH2and 1FADH2 (a) 3 and 4 carbon atoms respectively	1 1 2

	Or (b) Decarboxylation,Regeneration,isomerisation	2
31	Light dependent synthesis of ATP and NADPH Cyclic and acyclic photophosphorylation 1  Figure 13.6 Cyclic photophosphorylation 2  2 OR Any five differences between C3 and C4 Plants	1 2+2 1+1+1+1+1 =5

32	 Cardiac cycle consists of Joint diastole of atria and ventricles Atrial systole Ventricular systole with atrial diastole Ventricular diastole Total time of cycle is 0.8 OR Plasma:90-92 water and protein RBC:Without nucleus,avwrage life span 120 days WBC:Granulocytes and Agranulocyte (with details)	4 steps of one mark each and one mark for diagrammatic representation OR 1+1+3
33	Mitosis :Occurs in somatic cells,daughter cells are identical,no crossing over,short process from oneparent cell two daughter cells are produced Meiosis :occur in germinal cells,variation in daughter cells,crossing over is there ,long process, from one daughter ceii four daughter cells are produced OR Leptotene Zygotene pachytene Deplotene diakinesis	1+1+1+1+1=5