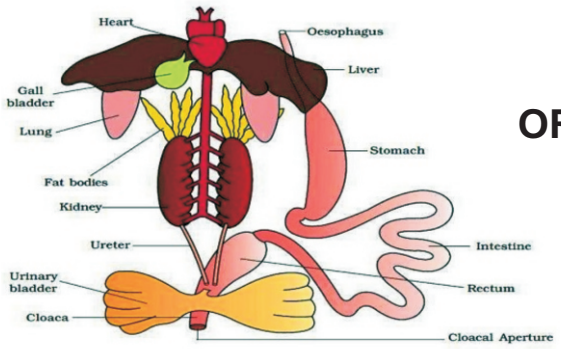
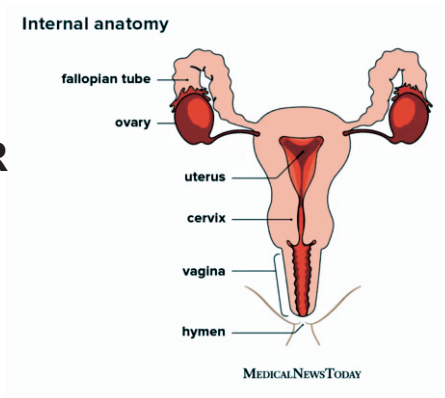
MARKING SCHEME (2024-25)
CLASS – XI
BIOLOGY

Q. No	Expected Answer/ Value Point	Marks
1.	b, Triticum aestivum	1
2.	b, Archae bacteria	1
3.	b, Volvox	1
4.	Androecium/stamens	1
5.	b, Synovial joint	1
6.	Annelida	1
7.	C, Mitochondria	1
8.	Endoplasmic reticulum	1
9.	Nitrogen	1
10.	b, Manganese / Mn	1
11.	a, Carbohydrate	1
12.	a, Gibberellins	1
13.	Pyruvic acid	1
14.	Adrenaline and nor adrenaline (ony one)	1
15.	b Urea	1
16.	b, A & R both are true but R is not correct explanation of A.	1
17.	C, A is true, but R is false. As the narrowing of blood vessles is also due to deposition of calcium and fibrous tissue besides fat and cholesterol.	1
18.	B, A & R both are true but R is not correct explanation of A.	1
19.	**Section-B** **Intra cellular digestion** / **Extra cellular digestion** 1. Digestion with in cell / 1.Digestion is in between cells. 2. e.g. Amoeba Few enzymes are involved. / 2. e.g. man Number of enzymes involved.(Any two) Or **Direct Development** / **Indirect development** 1. Young ones resemble the adults in all respect. / 1. Young ones do not resemble the adults. 2. No intermediate stage. / 2. Larval stage is intermediate stage	1 1 1 1
20.	Angiosperms and Gymnosperms are seed procducing plants but they are classified differently because 1. Angiosperms are flowering plants and Gymnosperms are non flowering. 2. In angiosperms seeds are enclosed in fruits but in gymnosperms seeds are naked as there is no fruit formation.	1 1

Q. No	Expected Answer/ Value Point	Marks
	Or Heterospory is a phenomenon in which two kinds of spores are borne on the same plant. The two kinds of spores differ in size & produce male & female gametophyte. Formation & retention of zygote takes place on female gametophyte. Heterospory is thus considered an important step in evolution as it is a precursor to the seed habit.	2
21.	**Pinnately Compound leaf** — **Palmate compound leaf** 1. Midrib is elongated. — Midrib is disc shaped 2. Leaf lets are present along the midrib. — Leaf lets are attached to a common point.	1 1
22.	**Mesosomes.** Invagination/ interdigitation of plasma membrane in bacterial cell. **Functions :** 1. Involved in cytokinesis. 2. Bears enzymes esential for oxidising food. Or **Metacentric** : Centromere is exactly in the centre and the two arms are equal. **Submetacentric :** Centromere is slightly away from centre and the two arms are unequal. **Telocentric :** Centromere is towards the terminal area. **Acrocentric** : Centromere is is subterminal.	1 1/2 1/2 1/2 1/2 1/2 1/2
23.	A leaf kept dark for long becomes yellow or pale green because of disintegration of chlorophyll Carotenoid which provide yellow colour are more stable.	1 1
24.	Hypothalamic Harmones - Pituitary. Thyrotrophin (TSH) - Thyroid. Corticotropin - Adrenal cortex. Gonadotropin (LH, FSH) - Ovary/Testis	1/2 1/2 1/2 1/2
25.	(a) Smooth muscles — iv) Involuntary (b) Tropomyosin — ii) Thin filament (c) Red muscle — I) myoglobin (d) Skull — iii) Sutures	1/2 1/2 ½ 1/2

Q. No	Expected Answer/ Value Point	Marks
26.	**C_3 Pathway** / **C_4 Pathway** 1 .RUBP is Primary acceptor . / PEP is Primary acceptor . — 1 2 .Optimum temperature for photosynthesis is 10 25 ℃ . / Optimum temperature is 30 45 ℃ — 1 3 .Phosphoglyceric acid is first product . / Oxaloacetic acid is first product . — 1 Or **Cyclic Photophosphorylation** / **Non Cyclic Photophosphorylation** 1 .Performed by photo system I independently . / Performed by both photosystem I & — 1 2 .It synthesises ATP only . / It synthesises ATP and $NADH_2$ — 1 3 .It is not connected with photolysis of water . / It is connected with photolysis of water — 1	
27 .	**Kreb s cycle**	
	CO_2 + PEP ⟶ C_4 acid — Mesophyll cell . — 1 C_4 acid —(Decarboxylation; Co_2 → Calvin cycle)→ C_3 Acid — Bundle Sheath cells — 1 C_3 acid —(Regeneration)→ PEP — Mesophyll cells — 1	
28	 **OR** 	3

Q. No	Expected Answer/ Value Point	Marks
29 .	**Hypogynous** -Gynoecicm occupies highest position , while other parts are situated below it	1
	Perigynous -Gynoecicm in centre Other parts are located on the rim of the thalamus almost at the same level .	1
	Epigynous Ovary is enclosed inside the thalamus other parts are inserted above the ovary	1
30	(a) Operculum — iv) Osteichthyes .	1/2
	(b) Parapodia — vii) Annelida	1/2
	(c) Radula — ii) Mollusca	1/2
	(d) Choanocytes — I) Porifera	1/2
	(e) Gill slits — iii) cyclostomes .	1/2
	(f) Comb plates — v) Ctenophora	1/2
31 .	1 . (i) Lack membrane band nucleus .	1/2
	(ii) Lack : Cell organelles	1/2
	2 . Lysosomes	1
	3 . In mitochondria ATP is produced that is why it is called powerhouse of cell . Or Smooth ER : Synthesis of lipids . Golgi apparatus : It is packing organelle .	2
32 .	(a) A Troponin	1/2
	B Tropomyosin	1/2
	(b) A Masks the active site of actin filament .	
	(c) Monomer of C : Meromyosin, C is Actin Or Myosin bears actin binding sites, through which it binds to actin filament.	2
33 .	**Protozoans belong Kingdom Protista .**	1
	Chrysophytes Diatoms and Desmids .	1
	Dinoflagellates Gonyaulax	1
	Fuglendids Euglena	1
	Sporozoans Plasmodium	1

Q. No	Expected Answer/ Value Point	Marks
33.	Or **Economic importance Algae :-** 1. Half of the CO ?fixation is carried out by algae Porphyra , Laminaria and Sargassum are used as food . 2. Water holding are Substances like algin carrageen are obtained from algae . 3. Chlorella is used as food supplement . **Economic importance of gymnosperms .** 1. In cycas small specialised roots called coralloid roots are associated with N_2 fixing cyanobacteria . 2. In Pinus the roots are associated with fungus in the form of mycorrhiza .	1 1 1 1 1
34 .	Substages of Phase I of Meiosis -I **1 .Leptotene :**Chromosomes show compaction and it continues throughout the stage . **2 .Zygotene :**Homologous chromosomes start pairing together and this process of association is called synapsis . The paired chromosomes are called bivalents . **3 .Pachytene :**The bivalent is seen as tetrad Crossing over occurs between non -sister chromatids . **4 .Diplotene :**It is characterised by the dissolution of syraptonemal complex and formation of Chiastmata takes place . **5 .Diakinesis :**It is marked by terminalisation of chiastmata . Or	1 1 1 1 1 1

	Mitosis	**Meiosis**	
1	.occurs in somatic cells / General body cells .	Occur in germinal cells .	1
2	.It is equational division .	It is Reductional division .	1
3	.From one parent cell ,bour two daughter cells are produced .	From one Parent cell our daughter cells are produced .	1
4	.No Crossing over .	Crossing over lakes place .	1
5	.It is short process .	It is long process .	1

Q. No	Expected Answer/ Value Point	Marks
35 .	Fishes have a 2 chambered heart with an atrium and a ventricle .	1
	Amphibian an reptiles (except crocodile)have a 3 chambered heart with two atria and a single ventricle .	2
	Crocodile ,birds and mammals possess a 4 chambered heart with two atria and two ventricles .	2
	Or	
	Cardiac cycle : All the four chambers are in relaxed state i e .diastole .	1
	* The bicuspid and tricuspid values are open and blood flow into left and right ventricles .	½
	* Semi lunar values are closed	
	* SAM now generates an action potential which stimulates simultaneous contraction of atria .	1/2
	• This increases the blood flow in ventricles, due to which the action potential is conducted in ventricles through AVN & AV bundle, and bundle of HIS, as a result the ventricles contract and atria relax.	1/2
	* Ventricular systole causes closure of bicuspid & tricuspid values semi lunar values open.	1/2
	* Ventricles diastole causing closure of semilunar values.	1/2
	* As the pressure declines the tricuspid & bicuspid values are pushed open & the joint diastole is achieved.	1/2
	Cardiac output: In one cardiac cycle 70 mL of blood is pumped and heart pumps 72 minutes so total volume of blood pumped 70 x 72= approximately 5000ml or 5 litres.	1