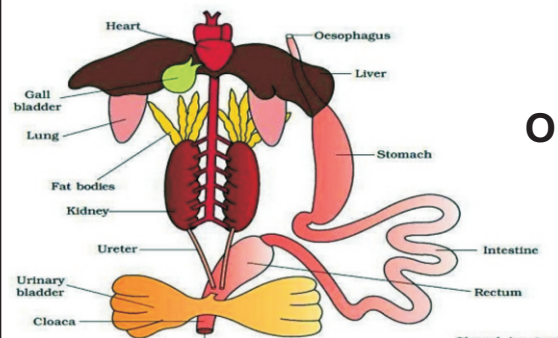
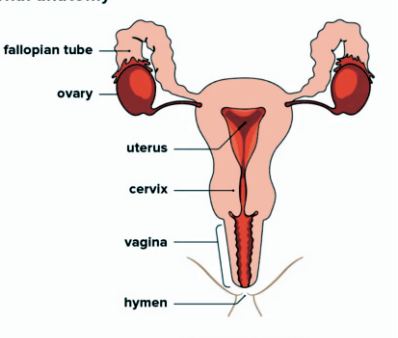


MARKING SCHEME (2024-25)
CLASS – XI
BIOLOGY

| 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 (only 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 vessels 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. | <div>Section-B</div> <div><div><div>Intra cellular digestion</div><div>1. Digestion with in cell</div><div>2. e.g. Amoeba Few enzymes are involved.</div></div><div>Extra cellular digestion</div><div>1.Digestion is in between cells.</div><div>2. e.g. man Number of enzymes involved.(Any two)</div></div> | 1 |
| | Or | |
| | <div><div>Direct Development</div><div>1. Young ones resemble the adults in all respect.</div><div>2. No intermediate stage.</div></div> <div><div>Indirect development</div><div>1. Young ones do not resemble the adults.</div><div>2. Larval stage is intermediate stage</div></div> | 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. | 1 |
| | 2. In angiosperms seeds are enclosed in fruits but in gymnosperms seeds are naked as there is no fruit formation. | 1 |

| Q. No | Expected Answer/ Value Point | Marks | | | | | | | | | | | | |
|--|--|---|------------------------------|-------------------------|-----------------------|--|---|---|--------------|---|-----|-----|-----|-----|
| | <p>Or</p> <p>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.</p> <p>Formation & retention of zygote takes place on female gametophyte.</p> <p>Heterospory is thus considered an important step in evolution as it is a precursor to the seed habit.</p> | 2 | | | | | | | | | | | | |
| 21. | <table><tr><td>Pinnately Compound leaf</td><td>Palmate compound leaf</td></tr><tr><td>1. Midrib is elongated.</td><td>Midrib is disc shaped</td></tr><tr><td>2. Leaf lets are present along the midrib.</td><td>Leaf lets are attached to a common point.</td></tr></table> | 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. | <table><tr><td>1</td></tr><tr><td>1</td></tr></table> | 1 | 1 | | | | |
| 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. | <p>Mesosomes. Invagination/ interdigitation of plasma membrane in bacterial cell.</p> <p>Functions :</p> <p>1. Involved in cytokinesis.</p> <p>2. Bears enzymes esential for oxidising food.</p> <p>Or</p> <p>Metacentric : Centromere is exactly in the centre and the two arms are equal.</p> <p>Submetacentric : Centromere is slightly away from centre and the two arms are unequal.</p> <p>Telocentric : Centromere is towards the terminal area.</p> <p>Acrocentric : Centromere is is subterminal.</p> | <table><tr><td>1</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr></table> | 1 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 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. | <table><tr><td>1</td></tr><tr><td>1</td></tr></table> | 1 | 1 | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 24. | <table><tr><td>Hypothalamic Harmones -</td><td>Pituitary.</td></tr><tr><td>Thyrotrophin (TSH) -</td><td>Thyroid.</td></tr><tr><td>Corticotropin -</td><td>Adrenal cortex.</td></tr><tr><td>Gonadotropin (LH, FSH) -</td><td>Ovary/Testis</td></tr></table> | Hypothalamic Harmones - | Pituitary. | Thyrotrophin (TSH) - | Thyroid. | Corticotropin - | Adrenal cortex. | Gonadotropin (LH, FSH) - | Ovary/Testis | <table><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>1/2</td></tr></table> | 1/2 | 1/2 | 1/2 | 1/2 |
| Hypothalamic Harmones - | Pituitary. | | | | | | | | | | | | | |
| Thyrotrophin (TSH) - | Thyroid. | | | | | | | | | | | | | |
| Corticotropin - | Adrenal cortex. | | | | | | | | | | | | | |
| Gonadotropin (LH, FSH) - | Ovary/Testis | | | | | | | | | | | | | |
| 1/2 | | | | | | | | | | | | | | |
| 1/2 | | | | | | | | | | | | | | |
| 1/2 | | | | | | | | | | | | | | |
| 1/2 | | | | | | | | | | | | | | |
| 25. | <table><tr><td>(a) Smooth muscless</td><td>iv) Involuntary</td></tr><tr><td>(b) Tropomyosin</td><td>Thin filament</td></tr><tr><td>(c) Red muscle</td><td>I) myoglobin</td></tr><tr><td>(d)Skull</td><td>iii)Sutures</td></tr></table> | (a) Smooth muscless | iv) Involuntary | (b) Tropomyosin | Thin filament | (c) Red muscle | I) myoglobin | (d)Skull | iii)Sutures | <table><tr><td>1/2</td></tr><tr><td>1/2</td></tr><tr><td>½</td></tr><tr><td>1/2</td></tr></table> | 1/2 | 1/2 | ½ | 1/2 |
| (a) Smooth muscless | iv) Involuntary | | | | | | | | | | | | | |
| (b) Tropomyosin | 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. | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>C₃ Pathway</p> <ol style="list-style-type: none"> 1 .RUBP is Primary acceptor . 2 .Optimum temperature for photosynthesis is 10 25 °C . 3 .Phosphoglyceric acid is first product . </div> <div style="width: 48%;"> <p>C₄ Pathway</p> <ol style="list-style-type: none"> 1 PEP is Primary acceptor . 2 Optimum temperature is 30 45 °C 3 Oxaloacetic acid is first product . </div> </div> <p style="text-align: center;">Or</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Cyclic Photophosphorylation</p> <ol style="list-style-type: none"> 1 .Performed by photo system I independently . 2 .It synthesises ATP only . 3 .It is not connected with photolysis of water . </div> <div style="width: 48%;"> <p>Non Cyclic Photophosphorylation</p> <ol style="list-style-type: none"> 1 Performed by both photosystem I & II 2 It synthesises ATP and NADH₂ 3 It is connected with photolysis of water </div> </div> | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">1</div> <div style="width: 48%;">1</div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">1</div> <div style="width: 48%;">1</div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">1</div> <div style="width: 48%;">1</div> </div> |
| 27 . | Kreb 's cycle | |
| | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> $\begin{array}{l} \text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid} \\ \text{C}_4 \text{ acid} \xrightarrow[\text{Co}_2 \longrightarrow \text{Calvin cycle}]{\text{Decarboxylation}} \text{C}_3 \text{ Acid} \\ \text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP} \end{array}$ </div> <div style="width: 48%;"> <p>Mesophyll cell .</p> <p>Bundle Sheath cells</p> <p>Mesophyll cells</p> </div> </div> | <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">1</div> <div style="width: 48%;">1</div> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">1</div> <div style="width: 48%;">1</div> </div> |
| 28 | <div style="display: flex; justify-content: space-around; align-items: center;">  <p style="font-size: 2em; font-weight: bold;">OR</p>  </div> | 3 |

| Q. No | Expected Answer/ Value Point | Marks | | |
|--|---|--|---|--|
| 33. | <p>Or</p> <p>Economic importance Algae :-</p> <p>1. Half of the CO₂ fixation is carried out by algae Porphyra , Laminaria and Sargassum are used as food .</p> <p>2. Water holding are Substances like algin carrageen are obtained from algae .</p> <p>3. Chlorella is used as food supplement .</p> <p>Economic importance of gymnosperms .</p> <p>1. In cycas small specialised roots called coralloid roots are associated with N₂ fixing cyanobacteria .</p> <p>2. In Pinus the roots are associated with fungus in the form of mycorrhiza .</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> | | |
| 34 . | <p>Substages of Phase I of Meiosis -I</p> <p>1 .Leptotene :Chromosomes show compaction and it continues throughout the stage .</p> <p>2 .Zygotene :Homologous chromosomes start pairing together and this process of association is called synapsis . The paired chromosomes are called bivalents .</p> <p>3 .Pachytene :The bivalent is seen as tetrad Crossing over occurs between non -sister chromatids .</p> <p>4 .Diplotene :It is characterised by the dissolution of syraptonemal complex and formation of Chiastmata takes place .</p> <p>5 .Diakinesis :It is marked by terminalisation of chiasmata .</p> <p>Or</p> <table><tr><td><p>Mitosis</p><p>1 .occurs in somatic cells / General body cells .</p><p>2 .It is equational division .</p><p>3 .From one parent cell ,bour two daughter cells are produced .</p><p>4 .No Crossing over .</p><p>5 .It is short process .</p></td><td><p>Meiosis</p><p>Occur in germinal cells .</p><p>It is Reductional division .</p><p>From one Parent cell our daughter cells are produced .</p><p>Crossing over lakes place .</p><p>It is long process .</p></td></tr></table> | <p>Mitosis</p> <p>1 .occurs in somatic cells / General body cells .</p> <p>2 .It is equational division .</p> <p>3 .From one parent cell ,bour two daughter cells are produced .</p> <p>4 .No Crossing over .</p> <p>5 .It is short process .</p> | <p>Meiosis</p> <p>Occur in germinal cells .</p> <p>It is Reductional division .</p> <p>From one Parent cell our daughter cells are produced .</p> <p>Crossing over lakes place .</p> <p>It is long process .</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> |
| <p>Mitosis</p> <p>1 .occurs in somatic cells / General body cells .</p> <p>2 .It is equational division .</p> <p>3 .From one parent cell ,bour two daughter cells are produced .</p> <p>4 .No Crossing over .</p> <p>5 .It is short process .</p> | <p>Meiosis</p> <p>Occur in germinal cells .</p> <p>It is Reductional division .</p> <p>From one Parent cell our daughter cells are produced .</p> <p>Crossing over lakes place .</p> <p>It is long process .</p> | | | |

| Q. No | Expected Answer/ Value Point | Marks |
|-------|---|---|
| 35 . | <p>Fishes have a 2 chambered heart with an atrium and a ventricle .</p> <p>Amphibian an reptiles except crocodile)have a 3 chambered heart with two atria and a single ventricle .</p> <p>Crocodile ,birds and mammals possess a 4 chambered heart with two atria and two ventricles .</p> <p>Or</p> <p>Cardiac cycle : All the four chambers are in relaxed state i e .diastole .</p> <ul style="list-style-type: none"> * The bicuspid and tricuspid values are open and blood flow into left and right ventricles . * Semi lunar values are closed * SAM now generates an action potential which stimulates simultaneous contraction of atria . • 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. * Ventricular systole causes closure of bicuspid & tricuspid values semi lunar values open. * Ventricles diastole causing closure of semilunar values. * As the pressure declines the tricuspid & bicuspid values are pushed open & the joint diastole is achieved. <p>Cardiac output: In one cardiac cycle 70 mL of blood is pumped and heart pumps 72 minutes so total volume of blood pumped $70 \times 72 =$ approximately 5000ml or 5 litres.</p> | <p>1</p> <p>2</p> <p>2</p> <p>1</p> <p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1</p> |