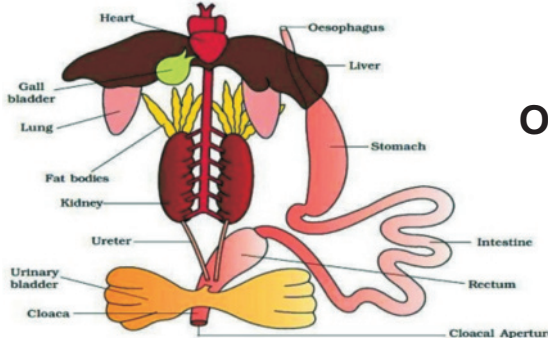
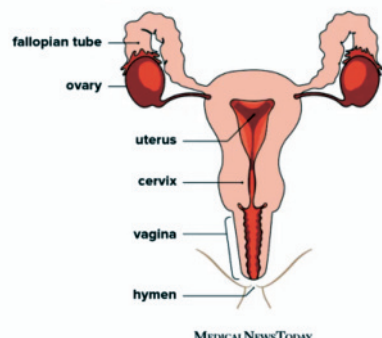
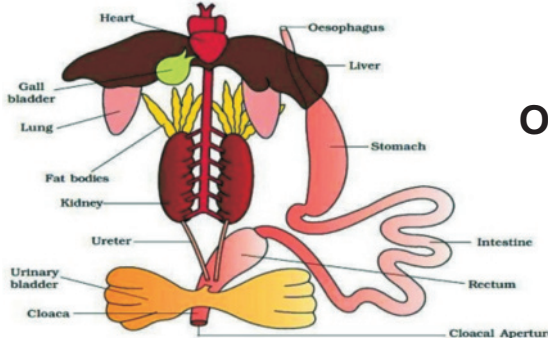
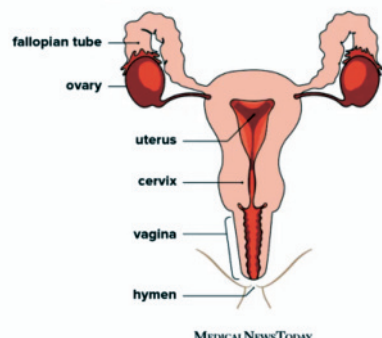
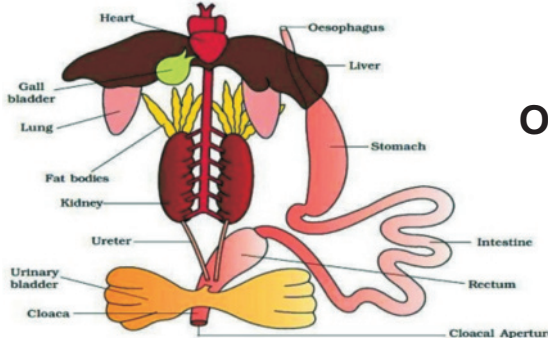
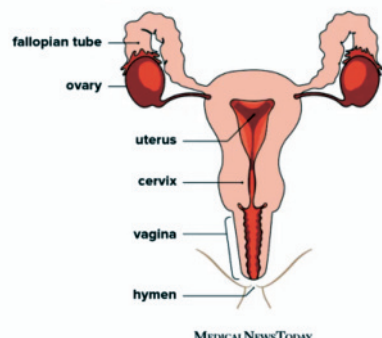


MARKING SCHEME (2024-25)
CLASS – XI
BIOLOGY

| 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><div><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><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></div><div>Or</div><div><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></div></div></div> | <div>1</div> <div>1</div> <div>1</div> <div>1</div> |
| 20. | <div>Angiosperms and Gymnosperms are seed procducing plants but they are classified differently because</div> <div>1. Angiosperms are flowering plants and Gymnosperms are non flowering.</div> <div>2. In angiosperms seeds are enclosed in fruits but in gymnosperms seeds are naked as there is no fruit formation.</div> | <div>1</div> <div>1</div> |

| 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 | | | | | | |
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| 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 | | | | | | | | | | | | | |
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| 1/2 | | | | | | | | | | | | | | |
| 25. | <table><tr><td>(a) Smooth muscles</td><td>iv) Involuntary</td></tr><tr><td>(b) Tropomyosin</td><td>ii) 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 muscles | iv) Involuntary | (b) Tropomyosin | ii) 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 muscles | iv) Involuntary | | | | | | | | | | | | | |
| (b) Tropomyosin | ii) Thin filament | | | | | | | | | | | | | |
| (c) Red muscle | i) myoglobin | | | | | | | | | | | | | |
| (d) Skull | iii) Sutures | | | | | | | | | | | | | |
| 1/2 | | | | | | | | | | | | | | |
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| 1/2 | | | | | | | | | | | | | | |

| Q. No | Expected Answer/ Value Point | Marks | | | | | | | | | | | |
|--|---|--|--|--|-----------------|--|---|--|---|---|---|---|---|
| 26. | <table><tr><td>C₃ Pathway 1. RUBP is Primary acceptor. 2. Optimum temperature for photosynthesis is 10-25°C. 3. Phosphoglyceric acid is first product.</td><td>C₄ Pathway PEP is Primary acceptor. Optimum temperature is 30-45°C Oxaloacetic acid is first product.</td></tr><tr><td colspan="2">Or</td></tr><tr><td>Cyclic Photophosphorylation 1. Performed by photo system-I independently. 2. It synthesises ATP only. 3. It is not connected with photolysis of water.</td><td>Non Cyclic Photophosphorylation Performed by both photosystem I & It synthesises ATP and NADH₂ It is connected with photolysis of water</td></tr></table> | C₃ Pathway 1. RUBP is Primary acceptor. 2. Optimum temperature for photosynthesis is 10-25°C. 3. Phosphoglyceric acid is first product. | C₄ Pathway PEP is Primary acceptor. Optimum temperature is 30-45°C Oxaloacetic acid is first product. | Or | | Cyclic Photophosphorylation 1. Performed by photo system-I independently. 2. It synthesises ATP only. 3. It is not connected with photolysis of water. | Non Cyclic Photophosphorylation Performed by both photosystem I & It synthesises ATP and NADH ₂ It is connected with photolysis of water | <table><tr><td>1</td></tr><tr><td>1</td></tr><tr><td>1</td></tr><tr><td>1</td></tr><tr><td>1</td></tr></table> | 1 | 1 | 1 | 1 | 1 |
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| Or | | | | | | | | | | | | | |
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| 1 | | | | | | | | | | | | | |
| 27. | Kreb's cycle | | | | | | | | | | | | |
| | <table><tr><td>$\begin{array}{l} \text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid} \\ \text{C}_4 \text{ acid} \xrightarrow[\text{Co}_2 \longrightarrow \text{Calvin cycle}]{\text{Decarboxylation}} \text{C}_3 \text{ Acid} \\ \text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP} \end{array}$</td><td>Mesophyll cell. Bundle Sheath cells</td></tr><tr><td></td><td>Mesophyll cells</td></tr></table> | $\begin{array}{l} \text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid} \\ \text{C}_4 \text{ acid} \xrightarrow[\text{Co}_2 \longrightarrow \text{Calvin cycle}]{\text{Decarboxylation}} \text{C}_3 \text{ Acid} \\ \text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP} \end{array}$ | Mesophyll cell. Bundle Sheath cells | | Mesophyll cells | <table><tr><td>1</td></tr><tr><td>1</td></tr><tr><td>1</td></tr></table> | 1 | 1 | 1 | | | | |
| $\begin{array}{l} \text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid} \\ \text{C}_4 \text{ acid} \xrightarrow[\text{Co}_2 \longrightarrow \text{Calvin cycle}]{\text{Decarboxylation}} \text{C}_3 \text{ Acid} \\ \text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP} \end{array}$ | Mesophyll cell. Bundle Sheath cells | | | | | | | | | | | | |
| | Mesophyll cells | | | | | | | | | | | | |
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| 28 | <table><tr><td></td><td>OR</td><td></td></tr></table> |  | OR |  | 3 | | | | | | | | |
|  | OR |  | | | | | | | | | | | |

| 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 chiastmata.</p> <p>Or</p> <table><tr><td>Mitosis</td><td>Meiosis</td></tr><tr><td>1. occurs in somatic cells/ General body cells.</td><td>Occur in germinal cells.</td></tr><tr><td>2. It is equational division.</td><td>It is Reductional division.</td></tr><tr><td>3. From one parent cell, four two daughter cells are produced.</td><td>From one Parent cell four daughter cells are produced.</td></tr><tr><td>4. No Crossing over.</td><td>Crossing over takes place.</td></tr><tr><td>5. It is short process.</td><td>It is long process.</td></tr></table> | Mitosis | Meiosis | 1. occurs in somatic cells/ General body cells. | Occur in germinal cells. | 2. It is equational division. | It is Reductional division. | 3. From one parent cell, four two daughter cells are produced. | From one Parent cell four daughter cells are produced. | 4. No Crossing over. | Crossing over takes place. | 5. It is short process. | It is long process. | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> |
| Mitosis | Meiosis | | | | | | | | | | | | | |
| 1. occurs in somatic cells/ General body cells. | Occur in germinal cells. | | | | | | | | | | | | | |
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| Q. No | Expected Answer/ Value Point | Marks |
|-------|--|---|
| 35. | <p>Fishes have a 2 chambered heart with an atrium and a ventricle.</p> <p>Amphibian and 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 valves are open and blood flow into left and right ventricles. * Semi lunar valves are closed * SAN 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 valves semi lunar valves open. * Ventricles diastole causing closure of semilunar valves. * As the pressure declines the tricuspid & bicuspid valves 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> |