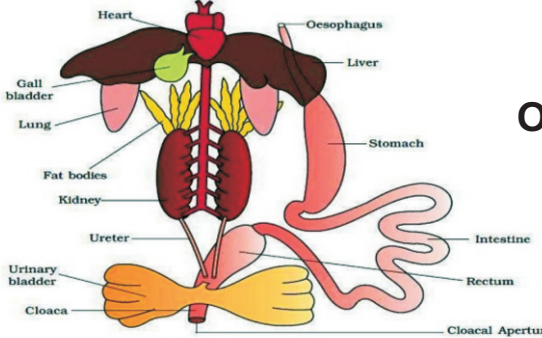
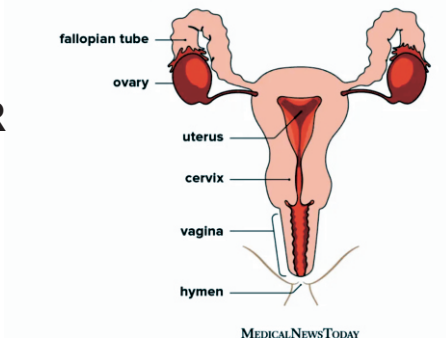


MARKING SCHEME (2024-25)
CLASS – XI
BIOLOGY

| 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 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. | Section-B | | | |
| | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Intra cellular digestion 1. Digestion with in cell 2. e.g. Amoeba Few enzymes are involved. </td> <td style="width: 50%; vertical-align: top;"> Extra cellular digestion 1. Digestion is in between cells. 2. e.g. man Number of enzymes involved.(Any two) </td> </tr> </table> | Intra cellular digestion 1. Digestion with in cell 2. e.g. Amoeba Few enzymes are involved. | Extra cellular digestion 1. Digestion is in between cells. 2. e.g. man Number of enzymes involved.(Any two) | 1 |
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| | Or | | | |
| <table border="1" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Direct Development 1. Young ones resemble the adults in all respect. 2. No intermediate stage. </td> <td style="width: 50%; vertical-align: top;"> Indirect development 1. Young ones do not resemble the adults. 2. Larval stage is intermediate stage </td> </tr> </table> | Direct Development 1. Young ones resemble the adults in all respect. 2. No intermediate stage. | Indirect development 1. Young ones do not resemble the adults. 2. Larval stage is intermediate stage | 1 1 | |
| Direct Development 1. Young ones resemble the adults in all respect. 2. No intermediate stage. | Indirect development 1. Young ones do not resemble the adults. 2. Larval stage is intermediate stage | | | |
| 20. | Angiosperms and Gymnosperms are seed producing 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 | | | | | | | | |
|--|---|--|------------------------------|-------------------------|-----------------------|--|---|--------------------------|--------------|--------------------------|
| | <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 border="0"> <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. | 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. | | | | | | | | | |
| 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 essential 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> | 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. | 1 1 | | | | | | | | |
| 24. | <table border="0"> <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 | 1/2 1/2 1/2 1/2 |
| Hypothalamic Harmones - | Pituitary. | | | | | | | | | |
| Thyrotrophin (TSH) - | Thyroid. | | | | | | | | | |
| Corticotropin - | Adrenal cortex. | | | | | | | | | |
| Gonadotropin (LH, FSH) - | Ovary/Testis | | | | | | | | | |
| 25. | <table border="0"> <tr> <td>(a) Smooth muscles</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 muscles | iv) Involuntary | (b) Tropomyosin | Thin filament | (c) Red muscle | i) myoglobin | (d) Skull | iii) Sutures | 1/2 1/2 1/2 1/2 |
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| (b) Tropomyosin | Thin filament | | | | | | | | | |
| (c) Red muscle | i) myoglobin | | | | | | | | | |
| (d) Skull | iii) Sutures | | | | | | | | | |

| Q. No | Expected Answer/ Value Point | Marks | | | | | | |
|--|--|--|--|----------------------------|--|--|---|--|
| 26. | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p>C₃ Pathway</p> <p>1 .RUBP is Primary acceptor .</p> <p>2 .Optimum temperature for photosynthesis is 10 25 °C .</p> <p>3 .Phosphoglyceric acid is first product .</p> </td> <td style="width: 50%; padding: 5px;"> <p>C₄ Pathway</p> <p>PEP is Primary acceptor .</p> <p>Optimum temperature is 30 45 °C</p> <p>Oxaloacetic acid is first product .</p> </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;">Or</td> </tr> <tr> <td style="padding: 5px;"> <p>Cyclic Photophosphorylation</p> <p>1 .Performed by photo system † independently .</p> <p>2 .It synthesises ATP only .</p> <p>3 .It is not connected with photolysis of water .</p> </td> <td style="padding: 5px;"> <p>Non Cyclic Photophosphorylation</p> <p>Performed by both photosystem I &</p> <p>It synthesises ATP and NADH₂</p> <p>It is connected with photolysis of water</p> </td> </tr> </table> | <p>C₃ Pathway</p> <p>1 .RUBP is Primary acceptor .</p> <p>2 .Optimum temperature for photosynthesis is 10 25 °C .</p> <p>3 .Phosphoglyceric acid is first product .</p> | <p>C₄ Pathway</p> <p>PEP is Primary acceptor .</p> <p>Optimum temperature is 30 45 °C</p> <p>Oxaloacetic acid is first product .</p> | Or | | <p>Cyclic Photophosphorylation</p> <p>1 .Performed by photo system † independently .</p> <p>2 .It synthesises ATP only .</p> <p>3 .It is not connected with photolysis of water .</p> | <p>Non Cyclic Photophosphorylation</p> <p>Performed by both photosystem I &</p> <p>It synthesises ATP and NADH₂</p> <p>It is connected with photolysis of water</p> | <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> |
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| 27 . | Kreb s' cycle | | | | | | | |
| | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> $\text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid}$ $\text{C}_4 \text{ acid} \xrightarrow{\text{Decarboxylation}} \text{C}_3 \text{ Acid}$ $\text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP}$ </td> <td style="width: 50%; padding: 5px;"> <p>Mesophyll cell .</p> <p>Bundle Sheath cells</p> <p>Mesophyll cells</p> </td> </tr> </table> | $\text{CO}_2 + \text{PEP} \longrightarrow \text{C}_4 \text{ acid}$ $\text{C}_4 \text{ acid} \xrightarrow{\text{Decarboxylation}} \text{C}_3 \text{ Acid}$ $\text{C}_3 \text{ acid} \xrightarrow{\text{Regeneration}} \text{PEP}$ | <p>Mesophyll cell .</p> <p>Bundle Sheath cells</p> <p>Mesophyll cells</p> | <p>1</p> <p>1</p> <p>1</p> | | | | |
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| 28 | <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Internal anatomy</p> </div> <div style="text-align: center;"> <p>OR</p>  <p>MEDICALNEWS TODAY</p> </div> </div> | 3 | | | | | | |

| Q. No | Expected Answer/ Value Point | Marks | | | | | | | | | | | | |
|---|---|--|---------|---|---------------------------|--------------------------------|------------------------------|---|--|-----------------------|-----------------------------|--------------------------|----------------------|---|
| 33. | <p style="text-align: center;">Or</p> <p>Economic importance Algae :-</p> <ol style="list-style-type: none"> Half of the CO₂ fixation is carried out by algae Porphyra , Laminaria and Sargassum are used as food . Water holding are Substances like algin carrageen are obtained from algae . Chlorella is used as food supplement . <p>Economic importance of gymnosperms .</p> <ol style="list-style-type: none"> In cycas small specialised roots called coralloid roots are associated with N₂ fixing cyanobacteria . In Pinus the roots are associated with fungus in the form of mycorrhiza . | <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> | | | | | | | | | | | | |
| 34 . | <p>Substages of Phase I of Meiosis -I</p> <ol style="list-style-type: none"> .Leptotene :Chromosomes show compaction and it continues throughout the stage . .Zygotene :Homologous chromosomes start pairing together and this process of association is called synapsis . The paired chromosomes are called bivalents . .Pachytene :The bivalent is seen as tetrad Crossing over occurs between non -sister chromatids . .Diplotene :It is characterised by the dissolution of syraptonemal complex and formation of Chiastmata takes place . .Diakinesis :It is marked by terminalisation of chiasmata . <p style="text-align: center;">Or</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Mitosis</th> <th style="width: 50%; text-align: center;">Meiosis</th> </tr> </thead> <tbody> <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 ,bour two daughter cells are produced .</td> <td>From one Parent cell our daughter cells are produced .</td> </tr> <tr> <td>4 .No Crossing over .</td> <td>Crossing over lakes place .</td> </tr> <tr> <td>5 .It is short process .</td> <td>It is long process .</td> </tr> </tbody> </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 ,bour two daughter cells are produced . | From one Parent cell our daughter cells are produced . | 4 .No Crossing over . | Crossing over lakes place . | 5 .It is short process . | It is long process . | <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> |
| Mitosis | Meiosis | | | | | | | | | | | | | |
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| 5 .It is short process . | It is long process . | | | | | | | | | | | | | |

| 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 style="text-align: center;">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 * 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 x 72= approximately 5000ml or 5 litres.</p> | <p style="text-align: center;">1</p> <p style="text-align: center;">2</p> <p style="text-align: center;">2</p> <p style="text-align: center;">1</p> <p style="text-align: center;">½</p> <p style="text-align: center;">1/2</p> <p style="text-align: center;">1/2</p> <p style="text-align: center;">1/2</p> <p style="text-align: center;">1/2</p> <p style="text-align: center;">1</p> |