

| Qn. No | Sub Qns | Answer Key/Value Points   | Score  | Total Score |
|--------|---------|---|--------|-------------|
| 1.     |         | A/Banana  | 1      | 1           |
| 2.     |         | Compressed Natural Gas  | 1      | 1           |
| 3.     |         | Integuments   | 1      | 1           |
| 4.     |         | <ul style="list-style-type: none"> <li>Palindromic nucleotide sequence/ Recognition sequence/ Recognition site/ cloning site/ Restriction enzyme cutting site/ -GAA<sup>T</sup>TC- / -CTT<sup>A</sup>AAG-</li> <li>Sequence of base pairs that reads same on the two strands when orientation of reading is kept the same.</li> </ul> | 1<br>1 | 2           |
| 5.     |         | Leaching, Catabolism, Humification, Mineralisation<br>(Any two response - give full score)  | 1x2    | 2.          |
| 6.     |         | <p><u>α-1 antitrypsin</u> - Used to treat emphysema/cystic fibrosis/Phenyl-Ketourea (PKU)/ medicine.</p> <p><u>α-Lactalbumin</u> - Nutritionally a more balanced product for human babies than natural cow-milk/Protein enriched milk/Nutritional milk.</p>   | 1<br>1 | 2.          |

SECOND YEAR HIGHER SECONDARY EXAMINATION (SAY) JUNE 2019

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|---|-----------------------|---|-------|-------------|-------------------|-------------|---------------------------------|-----------------------|--------|---------------------|---|-----------------|------------------------|---|
| 7.  |                       | <ul style="list-style-type: none"> <li>• BOD increases / Definition of BOD</li> <li>• Algal bloom / Its definition</li> <li>• Out break of diseases</li> <li>• Heavy metal poisoning</li> <li>• Biomagnification / Its definition</li> <li>• Eutrophication / Its definition</li> <li>• Damage of indigenous flora and fauna due to flowing out of heated waste water.</li> </ul> <p>(Any two correct response - give full score)</p>   | 1 × 2 | 2           |                   |             |                                 |                       |        |                     |   |                 |                        |   |
| 8.  |                       | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">A</th> <th style="width: 50%; text-align: center;">B</th> </tr> </thead> <tbody> <tr> <td>a. Cloning Vector</td> <td>(v) pBR 322</td> </tr> <tr> <td>b. Separation of DNA fragments.</td> <td>(iii) Electrophoresis</td> </tr> <tr> <td>c. PCR</td> <td>(ii) Taq Polymerase</td> </tr> <tr> <td>d. Converts raw materials into specific products.</td> <td>(i) Bioreactor.</td> </tr> </tbody> </table> | A     | B           | a. Cloning Vector | (v) pBR 322 | b. Separation of DNA fragments. | (iii) Electrophoresis | c. PCR | (ii) Taq Polymerase | d. Converts raw materials into specific products. | (i) Bioreactor. | $\frac{1}{2} \times 4$ | 2 |
| A   | B                     |   |       |             |                   |             |                                 |                       |        |                     |   |                 |                        |   |
| a. Cloning Vector                                 | (v) pBR 322           |   |       |             |                   |             |                                 |                       |        |                     |   |                 |                        |   |
| b. Separation of DNA fragments.                   | (iii) Electrophoresis |   |       |             |                   |             |                                 |                       |        |                     |   |                 |                        |   |
| c. PCR  | (ii) Taq Polymerase   |   |       |             |                   |             |                                 |                       |        |                     |   |                 |                        |   |
| d. Converts raw materials into specific products. | (i) Bioreactor.       |   |       |             |                   |             |                                 |                       |        |                     |   |                 |                        |   |

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| 9.     |         | Hydrarch / Hydrosere / Water Succession / Succession in wetland / Primary succession.<br>a - Submerged plant stage<br>b - Reed - Swamp stage<br>c - Marsh - meadow stage   | $\frac{1}{2}$<br><br>$\frac{1}{2}$<br>$\frac{1}{2}$<br>$\frac{1}{2}$     | 2.          |
| 10.    |         | Natality - Number of births during a given period in the population / Birth rate.<br>Mortality - Number of deaths in the population during a given period / Death rate.<br>Natality - B<br>Mortality - D   | $\frac{1}{2}$<br><br>$\frac{1}{2}$<br><br>$\frac{1}{2}$<br>$\frac{1}{2}$ | 2.          |
| 11.    |         | Development of female gamete/egg into a new organism without fertilisation is called parthenogenesis / Unfertilised egg develop into new - organism / Formation of new organism without fertilisation.<br>• Some lizards / Rotifers / Honey bees / Some birds / Turkey (Any one example) | 1<br><br><br><br><br><br><br><br><br><br>1                               | 2.          |



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| 15.    |         | <p>Explant - Any part of a plant taken out and grown in a nutrient medium / Any plant part used in tissue culture.</p> <p>Totipotency - Capacity to generate a whole plant from a cell or explant.</p> <p>Somaclones - Genetically identical offsprings developed through tissue culture.</p> <p>(Any two correct response - full score)</p> | 1½ x 2 | 3           |
| 16.    |         | <ul style="list-style-type: none"> <li>• Pollen grains are light</li> <li>• Non-sticky pollen grains</li> <li>• Well-exposed stamens</li> <li>• Large stigma</li> <li>• Feathery stigma</li> <li>• Single ovule in each ovary</li> <li>• Numerous flowers packed into inflorescence.</li> </ul> <p>(Any three responses)</p>                 | 1 x 3  | 3           |

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| 17     | a       | A - Methane<br>B - CO <sub>2</sub>   | $\frac{1}{2}$<br>$\frac{1}{2}$ | 3           |
|        | b       | - Odd climatic change / El Niño effect<br>- Increased melting of polar ice caps and Himalayan Snow caps.<br>- Rise in Sea level<br>(Any two similar responses)   | 1x2                            |             |
| 18     |         | Scutellum - Single Cotyledon<br>Radicle - lower end of embryonal axis.<br>Coleorrhiza - Sheath that encloses radicle.<br>Plumule - Upper end of embryonal axis<br>Epicotyl - Portion of the embryonal axis above the level of attachment of Scutellum.<br>Coleoptile - Sheath that encloses plumule<br>(Any two parts and their peculiarities - full score)<br>or<br>Correct labelled diagram with three parts (Two score) | $1\frac{1}{2} \times 2$        | 3           |