

CLASS : 12th (Sr. Secondary)

3683/3633

Series : SS-M/2018

Total No. of Printed Pages : 8

MARKING INSTRUCTIONS AND MODEL ANSWERS

BIOTECHNOLOGY

ACADEMIC/OPEN

(Only for Fresh/Re-appear Candidates)

उप-परीक्षक मूल्यांकन निर्देशों का ध्यानपूर्वक अवलोकन करके उत्तर-पुस्तिकाओं का मूल्यांकन करें। यदि परीक्षार्थी ने प्रश्न पूर्ण व सही हल किया है तो उसके पूर्ण अंक दें।

General Instructions :

- (i) Examiners are advised to go through the general as well as specific instructions before taking up evaluation of the answer-books.
- (ii) Instructions given in the marking scheme are to be followed strictly so that there may be uniformity in evaluation.
- (iii) Mistakes in the answers are to be underlined or encircled.
- (iv) Examiners need not hesitate in awarding full marks to the examinee if the answer/s is/are absolutely correct.

3683/3633

P. T. O.

- (v) *Examiners are requested to ensure that every answer is seriously and honestly gone through before it is awarded mark/s. It will ensure the authenticity as their evaluation and enhance the reputation of the Institution.*
- (vi) *A question having parts is to be evaluated and awarded partwise.*
- (vii) *If an examinee writes an acceptable answer which is not given in the marking scheme, he or she may be awarded marks only after consultation with the head-examiner.*
- (viii) *If an examinee attempts an extra question, that answer deserving higher award should be retained and the other scored out.*
- (ix) *Word limit wherever prescribed, if violated upto 10%. On both sides, may be ignored. If the violation exceeds 10%, 1 mark may be deducted.*
- (x) *Head-examiners will approve the standard of marking of the examiners under them only after ensuring the non-violation of the instructions given in the marking scheme.*
- (xi) *Head-examiners and examiners are once again requested and advised to ensure the authenticity of their evaluation by going through the answers seriously, sincerely and honestly. The advice, if not heeded to, will bring a bad name to them and the Institution.*

महत्त्वपूर्ण निर्देश :

- (i) अंक-योजना का उद्देश्य मूल्यांकन को अधिकाधिक वस्तुनिष्ठ बनाना है। अंक-योजना में दिए गए उत्तर-बिन्दु अन्तिम नहीं हैं। ये सुझावात्मक एवं सांकेतिक हैं। यदि परीक्षार्थी ने इनसे भिन्न, किन्तु उपयुक्त उत्तर दिए हैं, तो उसे उपयुक्त अंक दिए जाएँ।
- (ii) शुद्ध, सार्थक एवं सटीक उत्तरों को यथायोग्य अधिमान दिए जाएँ।
- (iii) परीक्षार्थी द्वारा अपेक्षा के अनुरूप सही उत्तर लिखने पर उसे पूर्णांक दिए जाएँ।
- (iv) वर्तनीगत अशुद्धियों एवं विषयांतर की स्थिति में अधिक अंक देकर प्रोत्साहित न करें।
- (v) भाषा-क्षमता एवं अभिव्यक्ति-कौशल पर ध्यान दिया जाए।
- (vi) मुख्य-परीक्षकों/उप-परीक्षकों को उत्तर-पुस्तिकाओं का मूल्यांकन करने के लिए केवल Marking Instructions/Guidelines दी जा रही है, यदि मूल्यांकन निर्देश में किसी प्रकार की त्रुटि हो, प्रश्न का उत्तर स्पष्ट न हो, मूल्यांकन निर्देश में दिए गए उत्तर से अलग कोई और भी उत्तर सही हो तो परीक्षक, मुख्य-परीक्षक से विचार-विमर्श करके उस प्रश्न का मूल्यांकन अपने विवेक अनुसार करें।

SECTION – A**(Objective Type Questions)**

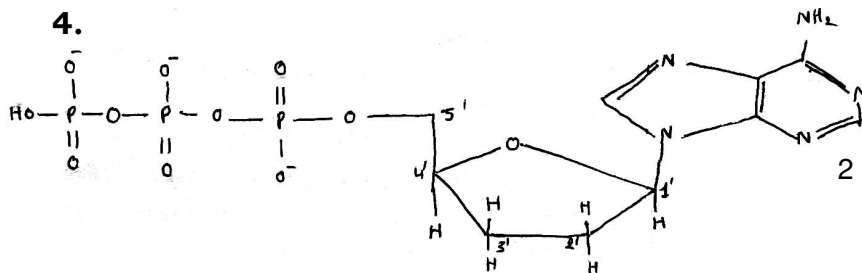
- | | | | |
|--------|-------|-----|---|
| 1. (i) | (a) | 1 | |
| | (ii) | (d) | 1 |
| | (iii) | (a) | 1 |
| | (iv) | (b) | 1 |
| | (v) | (b) | 1 |

- | | |
|--|---|
| (vi) (c) | 1 |
| (vii) (a) | 1 |
| (viii) (a) | 1 |
| (ix) <i>Streptomyces albus</i> | 1 |
| (x) Constructed by combining certain features of plasmid and the 'cos' site of phage lambda. | 1 |
| (xi) Schleiden and Schwann | 1 |
| (xii) <i>Gelidium amansii</i> | 1 |

SECTION – B

(Very Short Answer Type Questions)

2. (i) Parathion 1
(ii) Malathion 1
3. In annealing, the two oligo-nucleotide primers anneal or hybridise to each of the single stranded template DNA since the sequence of the primers is complementary to the 3' end of template DNA. This step is carried at low temp. 2



- 5.** (i) Locus link carries information on the official gene names and other descriptive information about genes. 1
- (ii) Through locus link one can access information on homologous genes. 1
- 6.** (i) It allows to know status in interphase.
- (ii) It can detect status of the disease by counting number of cells which appear yellow.
- (iii) By the help of this it is possible to monitor the effect of chemotherapy and drugs. 2
- 7.** Carbohydrates, Lipids, proteins provide energy. 2
- 8.** In this DNA is directly injected into plant protoplasts or cells (Specifically into the nucleus or cytoplasm) using five tipped (0.5-1.0 micrometer diameter) glass needle or micropipette. 2
- 9.** (i) Cancer cell cultures loose contact inhibition and pile on each other due to uncontrolled growth and among other features appear more rounded in shape. 1
- (ii) By the help of growth pattern in normal cell versus cancer cell, oncologist determines whether tumours are cancerous or not. 1

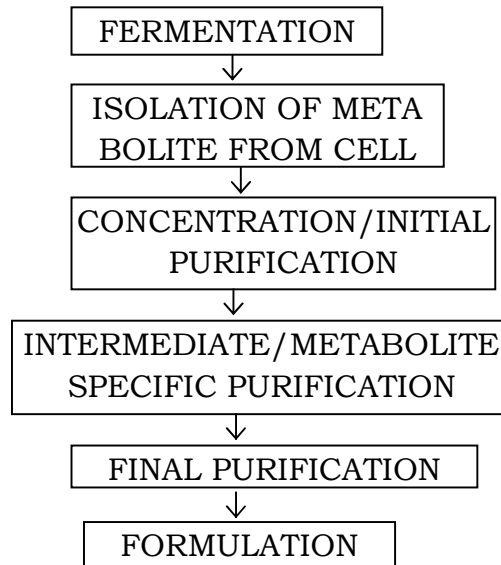
- 10.** (i) Electrophoretic technique.
- (ii) Fingerprinting
- (iii) Two dimensional gel electrophoresis
- (iv) Protein sequencing
- (v) Mass spectrometry 2

SECTION – C**(Short Answer Type Questions)**

- 11.** (i) In this the cell take up DNA from the surrounding environment. 1
- (ii) Many cell types, including *E. Coli*, yeast and mammalian cells, do not naturally transform; however simple chemical treatments can make all of these cells for transformation. Mandel and Higa found that *E. Coli* become competent to take external DNA when suspend in cold calcium chloride. 2
- 12.** The sample containing the microbes (eg. soil) is put in a nutritive medium and allowed to grow in shake cultures. The growth conditions (eg. temperature) or nutrients in the medium are provided such that these favor the growth of microbes of our interest. These are called enrichment techniques. The enriched culture

can be further sub-cultured by taking small inoculums and putting into fresh medium. In this way, the growth of the desired organism improves successively. 3

13.



3

14. Class - III hoods are used for work with highly pathogenic organisms. In these, the workers are screened from the work by a full physical barriers. This is normally achieved by the replacement of the open front with glass or perspex, with a pair of heavy duty protective gloves attached, through which work is accussed. 3

15. Osmolality of the medium is determined by the media formulation. Salt and glucose are major contributes to the osmolality of the medium,

although amino acids may also contribute significantly. Altering osmolality can affect cell growth and function. It may lead to loss of membrane integrity, as outside osmotic pressure becomes higher or lower than that which must be maintained inside the cell and cell shrinks or bursts respectively. 3

SECTION – D**(Long Answer Type Questions)**

- 16.** See A Text Book of Biotechnology, Class - XII, (CBSE). Page No. 9-10. 5

OR

See A Text-Book of Biotechnology, Class - XII, (CBSE). Page No. 26-27. 5

- 17.** See A Text Book of Biotechnology, Class - XII, (CBSE) Page No. **92-93**. 5

- 18.** See A Text Book of Biotechnology, Class - XII, (CBSE) Page No. **132**. 5

OR

See A Text Book of Biotechnology, Class - XII, (CBSE) Page No. **132-133**. 5

