BIOTECHNOLOGY
[Hindi and English Medium]
ACADEMIC/OPEN
(Only for Fresh Candidates)
(Evening Session)

Time allowed: 3 hours]              [Maximum Marks: 60

• कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित प्रश्न 18 हैं।
Please make sure that the printed question paper are contains 18 questions.

• प्रश्न-पत्र में शाहिने हाथ की ओर दिये गये कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख्य-पुष्ठ पर लिखें।
The Code No. on the right side of the question paper should be written by the candidate on the front page of the answer-book.

• कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें।
Before beginning to answer a question, its Serial Number must be written.

• उत्तर-पुस्तिका के बीच में खाली प्रान्त/ पन्ने न छोड़ें।
Don't leave blank page/pages in your answer-book.

• उत्तर-पुस्तिका के अंतरिक्ष कोई अन्य शीट नहीं मिलेगा। अतः आवश्यकतानुसार ही लिखें और लिखा उत्तर न काटें।
Except answer-book, no extra sheet will be given. Write to the point and do not strike the written answer.
Candidates must write their Roll Number on the question paper.

Before answering the question, ensure that you have been supplied the correct and complete question paper, no claim in this regard, will be entertained after examination.
General Instructions:

(i) This question-paper consist of 18 questions, which are divided into four Sections: A, B, C and D. All questions are compulsory.

(ii) Question No. 1 of Section - A has twelve (i-xii) objective type questions. Each question carries 1 mark.

(iii) Question Nos. 2 to 10 of Section - B are very short answer type questions. Each question carries 2 marks.

(iv) Question Nos. 11 to 15 of Section - C are short answer type questions. Each question carries 3 marks.

(v) Question Nos. 16 to 18 of Section - D are long answer type questions. Each question carries 5 marks.

(vi) There is no overall choice but in all questions of Section - D internal choice are given. You have to attempt only one of the given choice in such questions.

खण्ड अ

SECTION – A

(क्षूनिष्ठ प्रश्न)

(Objective Type Questions)

1. (i) प्रति 100 मिलीलीटर गाय के दूध में प्रोटीन की मात्रा होती है: 1

   (अ) 1.2 ग्राम
   (ब) 3.3 ग्राम
   (ग) 3.8 ग्राम
   (ड) 4.0 ग्राम
The protein contents per 100 ml of cow milk is:

(a) 1.2 gm
(b) 3.3 gm
(c) 3.8 gm
(d) 4.00 gm

(ii) कॉस्मिड के साथ क्लोन बनाने वाले इन्सर्ट की साइज क्या है?

(अ) 9-23 kb
(ब) 30-40 kb
(स) 0.5-8 kb
(र) 50-80 kb

What is the size of insert that can be cloned with cosmid:

(a) 9-23 kb
(b) 30-40 kb
(c) 0.5-8 kb
(d) 50-80 kb
(iii) Plasmids किसके बनते हैं?
(अ) mRNA के
(ब) tRNA के
(ग) r-RNA के
(ड) DNA के

Plasmids are made up of:
(a) mRNA
(b) tRNA
(c) r-RNA
(d) DNA

(iv) निम्न में से किसमें सबसे अधिक क्रोमोसोम पाए जाते हैं: 1
(अ) एराबिडोप्सिस
(ब) ड्रीसोफिला
(स) होमोसेपिएन्स
(ड) सेल्वेक्रोमाइकेस
Which of the following has maximum chromosomes?

(a) Arabidopsis  
(b) Drosophila  
(c) Homosapiens  
(d) Saccharomyces

One letter code 'K' stands for which aminoacid?

(a) Lysine  
(b) Proline  
(c) Serine  
(d) Threonine

Microbial culture in which form do bacteria grow?
Which is used as source of carbon in microbial culture?

(a) Cereal grains

(b) Sugar Cane Molasses

(c) Starch

(d) All of these

(vii) निम्न में से कौन बाइनरी फिशन के द्वारा बढ़ता जाता है?

(अ) बैक्टीरिया

(ब) यीस्ट

(स) फंगी

(द) यह सभी
Which of the followings grow by binary fission?

(a) Bacteria
(b) Yeast
(c) Fungi
(d) All of these

(viii) मोनोक्लोनल एन्टीबॉडीज़ निम्न में से किसके अलग डिटेक्शन में सहायक होती है?

(अ) हेपेटाइटिस
(ब) एड्स
(स) (अ) और (ब) दोनों
(इ) मलेरिया

Monochlonal antibodies have helped in early detection of:

(a) Hepatitis
(b) AIDS
(c) Both (a) and (b)
(d) Malaria

(ix) जैविक मूल्य किसे कहते हैं?

What is biological value?
(x) Name the scientist who coined the term genome.

(xi) Write full form of DSM.

(xii) Name the scientist who developed MS Medium.

SECTION – B

(Very Short Answer Type Questions)

2. Name two organophosphates which are used as insect repellants.

3. What are shuttle vector & expression vector?
4. What is curator?

What is curator?

5. Write genome size in base pairs & number of predicted genes of *Saccharomyces cerevisiae*.

Write genome size in base pairs & number of predicted genes of *Saccharomyces cerevisiae*.

6. Name the microorganisms which is used for production of L-Lysine and Vitamin B¹².

Name the microorganisms which is used for production of L-Lysine and Vitamin B¹².

7. Describe callus culture in brief.

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8. Write about cryopreservation.

Write about cryopreservation.
9. Discuss the functions of LAF.

10. Write down the functions of inverted microscope.

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SECTION – C

(लघु उत्तरीय प्रश्न)

(Short Answer Type Questions)

11. What is the role of BCAA in body?

12. Describe the specificity site of chymotrypsin.

13. Describe the process of transformation.
14. Discuss various steps of PCR.

15. Describe the organelle DNA.

**SECTION – D**

**Long Answer Type Questions**

16. What are the applications of microbial culture technology?

17. What are edible vaccines? Give their advantages.
Discuss various types of markers used in screening/selection.

Describe characteristics of cell lines.

Write about primary and secondary cell cultures.