

SEAT No. \_\_\_\_\_

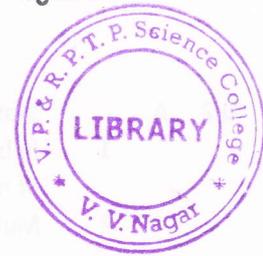
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[49/A-9]

**SARDAR PATEL UNIVERSITY**

**T.Y.B.Sc EXAMINATION - SEMESTER-6**

**MICROBIOLOGY – US06CMIC24  
FERMENTATION TECHNOLOGY -II**



Date: 19/07/2021  
Monday

Time: 10:00 AM to 12:00 PM  
Total marks: 70

**Q.1 Multiple Choice Questions.**

[10]

- 1 During mutagenesis, in strain improvement, double stranded breaks in DNA occurs due to-  
(a) X-rays (b) Short wavelength UV rays  
(c) Long wavelength UV rays (d) None of the above.
- 2 Short wavelength UV rays damages DNA by causing:  
(a) Thymine-Thymine dimers (b) Thymine-Cytosine dimers  
(c) Cytosine-Cytosine dimers (d) All of the above.
- 3 In which of the following nitrogenous bases, Hydroxylamine replaces amino group?  
(a) Adenine (b) Guanine  
(c) Cytosine (d) None of the above
- 4 ISO is \_\_\_\_\_.  
(a) International standardized organization (b) Indian standardized organization  
(c) International organization for standardization (d) Indian organization for standardization
- 5 For nonpathogenic organisms, \_\_\_\_\_ biosafety level is applicable.  
(a) BL1 (b) BL4  
(c) BL3 (d) BL2
- 6 Large respirometer is used for \_\_\_\_\_.  
(a) Recalcitrant material (b) Anaerobic digestion  
(c) Aeration rate (d) Biodegradable material
- 7 The oxygen concentration of waste ideally should be \_\_\_\_\_% before disposal in natural body.  
(a) 50 (b) 90  
(c) 20 (d) 70
- 8 Cobalt is an important ingredient of production medium to achieve maximum yield of \_\_\_\_\_ product.  
(a) penicillin (b) Ethanol  
(c) Vit B-12 (d) L-glutamic acid
- 9 The power of strain selection program has raised yield of penicillin production from native isolate from \_\_\_\_\_ IU/ml to \_\_\_\_\_ IU/ml.  
(a) 5-500 (b) 85-1000  
(c) 2-85000 (d) 85-500
- 10 Ethanol and other petrochemicals can be used as raw material to produce \_\_\_\_\_.  
(a) Ethanol (b) penicillin  
(c) L-glutamic acid (d) Hormones

Q.2 A

State whether the given statements are true or false.

[08]

- 1 In bacterial conjugation, transfer of genome to the recipient cell results in the formation of merozygote.
- 2 Mutation in which the change in base pair, AT----> GC, takes place is called Transversion mutation.
- 3 The sludge particles concentrate is decreased with increase with growth of organism.
- 4 Antifoam agent is essential in the production of Vit B-12, while not in alcohol production.

B Fill in the blanks with appropriate answer.

- 1 PEG is used to induce recombination in \_\_\_\_\_.
- 2 In recombination by \_\_\_\_\_, short pieces of DNA are taken up by the recipient cell.
- 3 Microbial action of anaerobic digester leads to produce landfill gas 50-60% \_\_\_\_\_.
- 4  $\text{CH}_3\text{CHO} + \text{NADH}_2 \text{-----} \rightarrow \text{CH}_3\text{CH}_2\text{OH} + \text{NAD}$ ; \_----- (name the enzyme)

Q.3

Give SHORT answers to the following questions. (Attempt Any ten)

[20]

- 1 What is spontaneous & induced mutation?
- 2 How nitrous acid causes mutation?
- 3 Enlist the steps of gene technology that permit gene manipulation during strain improvement programme.
- 4 What is GMP?
- 5 Enlist the properties of m.os considered for biosafety.
- 6 What is containment?
- 7 Write in brief on landfilled disposal.
- 8 Enlist the factors to be investigated for waste disposal site survey.
- 9 Draw typical flow chart of penicillin production.
- 10 Write in brief about antibiotics as food preservative.
- 11 Enlist criteria for strain selection to be used in alcohol production.
- 12 Draw biochemical pathway of glutamate production.

Q.4

Answer the following LONG Question: - (Attempt any four)

[32]

- 1 Describe Protoplast fusion
- 2 Short note on
  - (a) Mutagenesis through UV radiation.
  - (b) Parasexual recombination.
- 3 Define immobilization. Describe co-valent bonding & entrapment methods for immobilization.
- 4 Write in detail on sterility testing.
- 5 Describe the widely used methods to measure oxygen requirement of effluent.
- 6 Describe trickling filter and activated sludge process.
- 7 Write detail note on microbial fermentation of  $\alpha$  amylase.
- 8 Describe in detail on production of yoghurt using microorganism.

