

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, SEPTEMBER 2018

B. Sc./ Semester V

Subject: Microbiology & Biotechnology
Title of the paper: Industrial Biotechnology

Paper Code: 11102301

Date: 4/09/2018

Maximum Marks: 40

Time: 11:30 pm to 1:00pm

Instructions:

1. All questions are compulsory and options are given in first and second question only.
2. Numbers to the right of question indicate the marks of respective question.

Q. 1 Attempt any one question of the following. (08)
(i) Explain in detail the basic design (different parts) of fermentor with diagram
(ii) Explain different modes of preservation of microorganisms?

Q. 2 Attempt any three questions of the following. (12)
(i) Short note on important commercial products produced by microorganisms?
(ii) Explain different types of sparger used in fermentor?
(iii) Describe airlift fermentor in detail?
(iv) Describe packed bed column reactor in detail?
(v) Describe secondary screening in detail.

Q. 3 Do as directed. Attempt all five questions. (05)
(i) List different types of sensors used in fermentor
(ii) Explain Lyophilization
(iii) Define enrichment culture technique
(iv) Write short note on Auxanography
(v) Describe crowded plate technique

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. (15)

MCQ 1 Which of the following serve dual purpose of aeration and agitation?
(A) Cooling water tubing (B) Impeller
(C) Sparger (D) Oxygen probe

MCQ 2 What is the fullform of DMSO
(A) Di methyl sulphur oxide (B) Di methyl sulfoxide
(C) Di magnesium super oxide (D) Di methyl super oxide

MCQ 3 What happens when a frozen liquid goes directly into a gaseous state, without entering in liquid state
(A) Deposition (B) Sublimation
(C) Both A & B (D) None of these

MCQ 4 Isolation and detection of high yielding species from the natural source material containing a heterogeneous microbial population is called
(A) screening (B) auxonography
(C) lyophilization (D) cryopreservation

MCQ 5 Which of the following device is use to supply sterile air in the fermentation vessel during aerobic fermentation process?

- (A) Sampling valve
(C) Impeller
- (B) Sparger
(D) Oxygen probe
- MCQ 6 Which of the following disrupt vortex and provide better mixing?
 (A) Baffles
 (C) Impeller
 (B) Sparger
 (D) Foam breaker
- MCQ 7 Preserved culture is assessed for ----- before use
 (A) purity
 (C) viability
 (B) productivity
 (D) all of the above
- MCQ 8 Cryopreservation is
 (A) preservation at low temperature
 (C) preservation with dehydration
 (B) preservation at high temperature
 (D) preservation in mineral oil
- MCQ 9 Microbes are preserved because
 (A) they produce valuable product
 (C) they may require for longer period of time
 (B) they are the only microbes producing product
 (D) all of the above
- MCQ 10 Which of the following is used for agitation and vigorous stirring of media?
 (A) Spindle
 (C) Motor
 (B) Sparger
 (D) Impeller
- MCQ 11 Fermentor for fermentation process should be
 (A) Able to withstand high temperature
 (C) Able to resist corrosion
 (B) Able to withstand high pressure
 (D) All of the above
- MCQ 12 The region of an airlift bioreactor in which the liquid travels in a downward direction is called the
 (A) Downcomer
 (C) air riser
 (B) disengagement zone
 (D) Flotsam
- MCQ 13 Screening of microorganisms includes
 (A) Done in one or few steps
 (C) Easy detection of the small percentage of useful microorganism
 (B) Allow discarding of many valueless microbes
 (D) All of the above
- MCQ 14 The number of baffles in a standard stirred tank bioreactor is
 (A) 8
 (C) 4
 (B) 6
 (D) 2
- MCQ 15 Lyophilisation is also known as _____
 (A) freeze drying
 (C) primary screening
 (B) cryopreservation
 (D) all of above

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