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Sardar Patel University
M Sc II Semester Microbiology/Biotechnology
PS02CMIC/BIT01 Bioprocess and Biochemical Engineering
External Theory Examination

Date : 2nd April, 2016

Max Marks : 70

Time: 10:30 am to 1:30 pm

Q. 1 Choose the correct answer (08)

1. Which of these is a component of a biosensor
a) homogenizer b) transducer
c) heat exchanger d) all of these

2. Which of these is an example of continuous reactor
a) Chemostat b) bubble column reactor
c) Deep shaft reactor d) photobioreactor

3. The hollow shaft reactor is a type of
a) hydrodynamic system b) pneumatic system
c) plug flow reactor d) mechanical system

4. Containment means
a) prevent contaminants to enter the reactor b) prevent cells to leave the reactor
c) kill the contaminants d) prevent air to enter

5. The term C^* (C star) refers to
a) Oxygen transfer b) Driving force for O_2 dissolution
c) Oxygen uptake rate d) Oxygen saturation

6. The control system design for full incubation and sterilization must have
a) DDC b) Open loop
c) sequence logic d) event tracking

7. Bourden tube is used to measure
a) weight b) pressure
c) impeller speed d) flow rate

8. Find the odd one out
a) chemostat b) ultrafiltration
c) solvent extraction d) disc bowl centrifuge

Q. 2 Explain the terms in brief: **(any seven)** (14)

- a) C_{crit}
- b) Non Newtonian rheology
- c) Event tracking
- d) Dilution rate
- e) Scale up
- f) Mass transfer
- g) Packed bed reactor
- h) Fed-batch process
- i) Culture degeneration

Q. 3 A) Explain strategies for secondary screening (06)

B) Write a note (Any one) (06)

- a) Nitrogen sources
- b) Strain improvement

Q. 4 A) Explain the principle and methods of continuous sterilization (06)

B) What are pneumatic systems? Explain design of any two in brief (06)

OR

B) Discuss the factors affecting K_{La} . (06)

Q. 5 A) Explain the monad kinetics of a batch cultivation system. (06)

B) Write a note on: (any one) (06)

- a) Microprocessor based control
- b) Types of control

Q. 6 A) List the methods of cell separation and discuss any two in brief (06)

B) Write a note on (any one) (06)

- a) Mechanical methods of cell disruption
- b) Rotary drum filter

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