

P. Pages : 2

Time : Three Hours

**AW - 3516**

Max. Marks : 80

- Notes :
1. Answer **Any three** questions From Section A and **Any three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Diagrams and Chemicals equations should be given wherever necessary
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Discuss the reaction, mechanism wherever necessary.
 6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. Explain the characteristics of biological matters and their application in producing biproducts. **14**

OR

2. Explain classification of biotechnology processes. such as white biotechnology, green biotechnology, blue biotechnology and red biotechnology. **14**
3. Explain the manufacture process of antibiotics using fermentation. **13**

OR

4. a) Explain theoretical yield and observed yield of biological process. **7**
- b) Explain the feed and product inhibited cell growth. **6**
5. a) Acetobacter aceti bacteria are added to vigorously aerated medium containing 10 gm/lit ethanol and after sometime ethanol concentration becomes 2 gm/lit and 7.5 gm/lit acetic acid is produced find the overall yield of acetic acid from ethanol and compare it with theoretical yield. **7**
- b) Describe the relation of specific growth rate with various phases of cell growths. **6**

OR

6. Explain physical, chemical and biological parameters to be measured and controlled in biological processes. **13**

SECTION - B

7. Explain general fermentation flowsheet with diagram, along with product recovery. **14**

OR

8. a) Compare thermal sterilization with membrane sterilization. **7**

7. a) What is fixed capital? How it is estimated for a process plant? 7
- b) What are the different types of depreciation and methods of depreciation? 7

OR

8. a) What do you mean by working capital? How is it estimated for a process plant? 7
- b) A rotary pump costs Rs. 25000 fully installed. The estimated salvage value of the pump is Rs. 3000/- If the pump gives 10 years of service, what will be the depreciation charge by double declining balance method of depreciation in second and fourth year? 7
9. a) How to determine capacity of a process plant and how to estimate the profitability of a plant? 7
- b) What are the various measures of economic performance? What do you mean by cash flow analysis? 6

OR

10. a) What do you mean by rate of return, payout period and net present value in case of a process plant? 7
- b) A company has the following cash flow resulting from a project. Calculate the internal rate of return, which satisfies the cash flow. 6

Year	0	1	2	3	4
Cash flow	360000	398400	398400	531200	597600

11. a) What do you mean by inventory control? State its importance. 7
- b) Explain critical path method and state its importance. 6

OR

12. a) What do you mean by optimum production rate? Explain in details. 7
- b) Explain the difference between PERT and CPM along with their importance. 6
