

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VIII CHEMICAL :SUMMER- 2022
SUBJECT : PLANT DESIGN, PROJECT ENGINEERING & COSTING

Day : Tuesday

Date : 14-06-2022

S-13600-2022

Time : 02:30 PM-05:30 PM

Max. Marks : 60

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N.B.

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labelled diagram **WHEREVER** necessary.
 - 4) Use of non – programmable **CALCULATOR** is allowed.
 - 5) Assume suitable data if necessary.
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Q.1 Elaborate various steps involved in ‘Techno Economic’ feasibility report? (10)
Explain significance of ‘Techno Economic’ feasibility report.

OR

Q.1 What are different primary and secondary utilities required for the plant (10)
operation? Explain each one in sufficient detail.

Q.2 Elaborate the role of research and development and pilot plant in process (10)
development and commercialization.

OR

Q.2 What is schematic flow diagram and engineering flow diagram? Explain (10)
process flow diagram with specific case study.

Q.3 With suitable schematic elaborate how cash flow works for industrial (10)
operations.

OR

Q.3 What is cost index? Which are the most important cost indexes used for (10)
chemical engineering? Explain any two of them.

Q.4 Consider a capital investment of Rs. 5.5×10^6 for plant facilities, Rs 2.5×10^6 (10)
for working capital and Rs. 2×10^6 for land. For zero salvage value and
project plant life of 10 years determine the annual depreciation charges for
the following types of depreciation

- i) Straight line
- ii) Double declining balance

P.T.O.

OR

Q.4 Balance sheet for industrial concern is based on which equation? Elaborate consolidated balance sheet and modern balance sheet. (10)

Q.5 What is break – even analysis? Give elaborative information about break even chart for chemical process with neat diagram. (10)

OR

Q.5 A new piece of completely installed equipment costs Rs 12,000/- and will have a scrap value of Rs. 2000/- at the end of its useful life. If this useful life is 10 years and the interest is compounded at 6% per year, what is the capitalized cost of the equipment? (10)

Q.6 Elaborate the following terminologies: (10)

- i) Bar chart
- ii) Milestone charts
- iii) Critical path method (CPM)
- iv) Program evaluation and review technique (PERT)

OR

Q.6 A small engineering project consists of 6 activities namely A, B, C, D, E, F with duration of 4, 6, 5, 4, 3 and 3 days respectively. Draw the network diagram and mark the critical path for this project. (10)

Activity	Pre-activity	Duration
A	-	4
B	A	6
C	B	5
D	A	4
E	D	3
F	C, E	3

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