PAPER ID-310061

Subject Code: RCH076

Roll No:

B.TECH
(SEM VII) THEORY EXAMINATION 2020-21
PROJECT ENGINEERING AND MANAGEMENT

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 7 = 14**

a.	What are the different types of flow diagrams?
b.	Define Break-even point.
c.	Explain sixth-tenth factor rule.
d.	Discuss payback period.
e.	Discuss community factors in plant location.
f.	Discuss significance of plant layout.
g.	Define cost index used in chemical engineering cost estimation.

SECTION B

2. Attempt any *three* of the following: **7 x 3 = 21**

a.	State methods of estimating capital investment and discuss any one in detail.
b.	With neat diagram discuss cash flow for an industrial operation.
c.	Write a short note on PERT and CPM techniques.
d.	Discuss optimum production rate in plant operation and optimum condition in cyclic operation.
e.	A manufacturing house has a capacity of 3,00,000 units annually. The fixed cost of production line is Rs. 2,00,000/- per year with variable cost of Rs. 4/- unit and revenues of Rs. 7/- per unit. Evaluate breakeven in terms of percentage of capacity utilized by the company.

SECTION C

3. Attempt any *one* part of the following: **7 x 1 = 7**

(a)	A proposed manufacturing plant requires an initial fixed capital investment of $ 900,000 and $ 100,000 of working capital. It is estimated that the annual income will be $ 800,000 and the annual expenses including depreciation will be $ 520,000 before income taxes. A minimum annual return of 15% before income tax is required before the investment would be worthwhile. Income taxes amount to 34 percent of all pre-tax profits. Determine the annual percent return on total investment before and after income taxes.
(b)	Discuss about Economic and safety aspects to be considered in a chemical plant project.

4. Attempt any *one* part of the following: **7 x 1 = 7**

(a)	Discuss selection of material handling equipment.
(b)	Define: auto ignition temperature, book value, lower flammability limit, discount factor, functional depreciation.

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5. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	Explain the factors affecting Investment and production costs.
(b)	What are the different project selection methods? Explain net present value analysis and pay back analysis.

6. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	Critically compare various methods of calculation of depreciation. Take an example to show the variation. What is the difference between depreciation and amortization?
(b)	Discuss different types of flow diagrams with examples. How is a specification sheet made? Prepare a sample specification sheet for heat exchanger.

7. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	Enlist and explain different methods of profitability analysis. Comment critically on their practical applications
(b)	Discuss preservation and control of Mechanical, Electrical and Chemical hazards.