Bachelor of Civil Engineering
5TH Year 1st Semester (Evening) Supplementary Exam, 2018
Construction Management

Time: Three hours

Answer any five Questions
All questions carry equal marks

Full Marks: 100

1 (a) Differentiate between centralization and decentralization of Organization Authority.

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(b) Explain the role of 'Directing' as a process of Construction Management.   4

(c) A construction Manager has two independent investments 'A' and 'B' available to him, but he lacks the capital to undertake both of them. Simultaneously, he can choose to take 'A' first and then stop, or if 'A' is successful then take 'B' or vice versa. The probability of success on 'A' is 0.7 while for 'B' it is 0.4, Both investments require an initial capital outlay of Rs 2,00,000/- and both return nothing, if the venture is unsuccessful. Successful completion of 'A' will return Rs 3,00,000/- and successful completion of 'B' will return Rs 5,00,000/-(over cost).

Draw the decision tree and determine the best strategy.   10

2(a) A manager will bid for a project consisting of several activities. Due to the uncertainties and risks, the manager estimated the most optimistic, most likely and most pessimistic time for each activity as shown below:

Activity	most optimistic time	most likely time	most pessimistic time
(1,2)	9	12	15
(2,3)	1	4	7
(2,4)	12	15	48
(3,5)	14	20	26
(3,6)	4	7	16
(3,7)	4	7	16
(6,7)	5	8	11
(4,7)	2	8	14
(7,8)	9	12	15
(8,9)	1	4	7
(5,6)	0	0	0

The manager now advised you to do the following

i) Draw the PERT network of the project

ii) Determine the expected time and variance for each activity 11

b) Differentiate between Fixed Assets and Current Assets 6

c) What do you mean by the term 'Liability'? 3

3 (a) A construction company is in the process of quoting a tender called by a Public Sector Undertaking for construction of a portion of National Highway. The winning of tender also depends on how soon the company is able to complete the work. The Construction manager has listed down the activities in the project as under:

Sl No	Activity	Immediate Preceding	Activity time (week)
1	A	--------	3
2	B	--------	4
3	C	A	5
4	D	A	6
5	E	C	7
6	F	D	8
7	G	B	9
8	H	E,F,G	3

(i) Find out the completion period.

(ii) Find out the total float, free float and independent float for each activity 10

(b) Explain the Expert Opinion Method in connection with Forecasting Technique. 5

(c) Mention the limitations of Bar Chart Technique in connection with the Time Management and Scheduling. 5

4.(a) The data on the operating costs per year and re-sale prices of an equipment whose purchase price is Rs 1,00,000 are given below:

Year:	1	2	3	4	5	6	7
Operating costs (Rs):	15000	19000	23000	29000	36000	45000	55000
Resale Value (Rs):	50000	25000	12500	6000	4000	4000	4000

Calculate the optimum period of replacement. 7

(b) What do you mean by "Operating Cycle Concept" of an enterprise? 4

(c) Indian Oil Company took a decision for exploration of a certain land for availability of oil. The company offer the land owner an amount of Rs 6,00,000/- for obtaining permission for exploration and if oil is available, the land owner will be paid a further sum of Rs

60,00,000/-. The company also made an alternative suggestion that If the land owner himself can incur the cost of Rs 10,00,000/- for exploration, he can expect the return of Rs 1,00,00,000/-. From the past exploration record, 60% chance of availability of oil can be predicted. Determine the choice of the land owner using Decision Tree Technique.

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5 (a) Mention the methods of Forecasting.   3

(b)   The experience of Batching Plant Operators and their performance ratings are given below:

Operator :	1	2	3	4	5
Experience:	7	2	10	4	8
Performance Rating:	40	55	25	40	35

Your Chief Engineer has asked you to calculate the probable performance rating of an Operator having 14 years of experience with the help of forecasting technique. Show your calculation.   10

(c) Discuss the application of PERT and CPM techniques in Construction Industries.   7

6 (a) Prepare a balance sheet for X Co. with the following balances as on 31.3.2012:

	Rs
Capital	1,86,00,000
Land property	36,00,000
Stock	28,00,000
Furniture	4,00,000
Buildings	40,00,000
Debtors	10,00,000
Creditors	10,00,000
Bills receivables	2,00,000
Plant & Machinery	38,00,000
Investment	32,00,000
Purchases	10,00,000
Goodwill	24,00,000
Cash in hand	1,60,000
Bank Overdraft	4,00,000
Loans	14,00,000

Bills payables   11,60,000

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(b) Explain the term "Working Capital" of a business concern.   4

(c) Calculate the Working Capital of "X" Co. from the information as furnished at (a)   7

7. Write short notes on: (5x4)

a) Conditions and compensations for layoff.

b) Special provision of retrenchment in establishments employing more than hundred employees.

c) Trading Account and Profit & Loss Account.

d) Replacement theory in connection with replacement of construction equipments.

e) Direct Costs and indirect costs of a project.