

Total No. of Questions : 10]

SEAT No. :

P4264

[Total No. of Pages : 4

[5353]-507

TE. (Civil)

**Project Management and Engineering Economics
(2015 Pattern)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to candidates:

1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q. 9 or Q.10.

Q1) a) What are the objectives and importance of Project management? **[2+3]**

b) Explain with sketch matrix organizational structure. **[2+3]**

OR

Q2) a) Define Activity, event and critical event, critical path and slack. **[5]**

b) Explain Project Management Book of Knowledge {PMBOK} - Different Domain Areas. **[5]**

Q3) a) Following data is for small construction Project. Draw a network. Calculate expected mean time for each activity. **[2+3]**

Activity	Estimated duration in days		
	Optimistic	Most likely	Pessimistic
1-2	4	10	22
2-3	2	5	8
2-4	4	7	16
2-5	4	7	10
3-5	4	7	22
4-5	5	8	17
5-6	6	9	18

P.T.O.

- b) How do you inspect quality of material like sand and aggregate on your site? **[2.5+2.5]**

OR

- Q4)** a) Listed below are the activities of a project along their durations. **[3+2]**

Activity	1-2	2-3	2-4	2-5	3-10	4-6	4-7	5-10	6-8	7-8	8-9	9-10
Duration (days)	4	5	7	4	15	7	Dummy	10	6	7	12	10

Draw network and calculate the total project duration.

- b) What safety precautions would you take to avoid accidents on Flyover site? Explain safety programme undertaken. **[3+2]**

- Q5)** a) Explain Resources Allocation. Write steps to do Resource Smoothing and Leveling. **[2+3]**

- b) When to update the network? Write steps to update the network. **[2+3]**

- c) Following table shows the data of small construction project. **[8]**

- i) Draw the network diagram and update the network by using the following conditions at the end of 10 days.
- ii) What is the change in the project duration?
- iii) What is remaining duration of project?

Activity	1-2	2-3	2-4	3-5	4-5	5-6	5-7	6-7
Duration (Days)	4	6	5	2	1	4	6	6

At the end of 10 days review was taken which indicates -----

- 1) Activity 1-2 & 2-4 was completed as originally planned.
- 2) Activity 2-3 & 3-5 delayed drastically and requires 5 & 6 more days respectively for their completion.
- 3) Activity 4-5 & 5-6 is in progress and both require 8 more days for their completion.

- 4) Activity 6-7 yet to start and the original time estimate still appear to be accurate.
- 5) Activity 5-7 requires 8 days in place of 6 days for its completion.

OR

- Q6)** a) Comment on Project management software's and their applications in Infrastructure projects. **[1+4]**
- b) What do you mean by EVA? Explain any one method in detail. **[2+3]**
- c) Following table shows the cost duration data for a small construction project. Carry out step by step Crashing and how much you save by crashing the network. Indirect cost is Rs. 3000 week. **[8]**

Activity		1-2	1-3	2-3	2-4	3-4
Normal	Cost	7000	4000	6000	8000	5000
	Duration(Weeks)	6	8	4	5	5
Crash	Cost	14500	8500	9000	15000	11000
	Duration(Weeks)	3	5	1	3	3

- Q7)** a) Explain Importance of Project economics and its importance in construction industry. **[6]**
- b) How to calculate simple and compound interest? What is the difference between the simple interest and compound interest payable on a principal of Rs 15,000 in 3 years at the rate of 20 % p.a. **[2+4]**
- c) Explain Equilibrium price, Equilibrium Amount and Factors affecting Price Determination. **[2+2]**

OR

- Q8)** a) Explain Concept of Cost of Capital & Time Value of Money. **[3+3]**
- b) Explain Types of Capital - Fixed and Working. **[3+3]**
- c) Mrs. Mayuri brought a refrigerator for Rs. 20000; she paid tax of Rs 1000 and Rs. 200 for transport. If she sold it to a customer for Rs.23500, What is the percentage profit or loss? **[4]**

- Q9) a)** What are the different types of appraisals required to undertake any Project? Explain any one in detail. **[2+4]**
- b)** Write a short note on (with formula and selection criteria) **[3+3]**
- i) NPV,
- ii) Pay-Back Period
- c)** Explain IRR method with formula, selection criteria. **[2+2]**

OR

- Q10)a)** Following are the details of Project A and B. Suggest which one is to be accepted by using NPV ($i=8\%$) **[6]**

Years	Project A	Project B
0	4,00,000	4,50,000
1	1,20,000	1,40,000
2	1,25,000	1,45,000
3	78,000	76,000
4	80,000	65,000
5	75,000	60,000
6	-	90,000

- b)** What is the role of Project management Consultant in Pre-tender and Post-tender of a Project? **[3+3]**
- c)** Explain Study of Project Feasibility report with example. **[2+2]**

