

8E4033

Roll No. : \_\_\_\_\_

Total Printed Pages : 4

**8E4033**

B. Tech. (Sem. VIII) (Main / Back) Examination, April / May - 2012  
Civil Engineering  
8CE3 Project Planning & Construction Management

Time : 3 Hours]

[Total Marks : 80

[Min. Passing Marks : 24

*Attempt any five questions. Selecting one question from each unit.*

*All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used / calculated must be stated clearly.*

Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)

1. \_\_\_\_\_ Nil \_\_\_\_\_ 2. \_\_\_\_\_ Nil \_\_\_\_\_

**UNIT - I**

1 (a) Define Net Present Value, Benefit-Cost Ratio, Internal Rate of Return and Accounting Rate of Return related to capital investment proposals.

8

(b) Discuss the objectives and functions of construction project management.

8

**OR**

1 (a) Discuss the objectives of project planning. What are the different stages involved in planning of a construction project ?

8

(b) Discuss the main causes of failure of construction projects.

8



## UNIT - II

- 2 Discuss the concept of Work-Breakdown Structure in scheduling of construction projects. Consider a project with the following details. Draw the project network, identify critical path, find the minimum completion time of the project. Also find the total float and free float time for each non-critical activity.

16

Activity	A	B	C	D	E	F	G	H	I	J	K
Immediate Predecessor	-	-	-	A	B	B	C	D	E	H,I	F,G
Duration (Weeks)	2	3	4	6	6	8	5	1	4	6	3

OR

- 2 A PERT project consists of the following activities and their time estimates in days (Optimistic, most likely and pessimistic) are given in the table. Draw the project network, find the expected completion time of project. Also find the probability that the project will be completed

- (i) at least 4 days earlier than expected time  
 (ii) not more than 4 days later than expected time.

If probability factor  $P(0 \leq Z \leq 1.33) = 0.4082$

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
$t_o$	1	1	2	1	2	2	3
$t_m$	1	4	2	1	5	5	6
$t_p$	7	7	8	1	14	8	15

16

## UNIT - III

- 3 Define Direct and Indirect Project costs. The time-cost data of a project are given below, the project indirect cost is Rs.60 /- per week.



Activity	Normal		Crash		Cost Slope (Rs./week)
	Time	Cost	Time	Cost	
1-2	8	100	6	200	50
1-3	4	150	2	350	100
2-4	2	50	1	90	40
2-5	10	100	5	400	60
3-4	5	100	1	200	25
4-5	3	80	1	100	10

Determine the optimum time duration of the above project and cost associated with this duration, giving step-by-step process of crashing of activities. Also draw the cost-duration curve for this network.

16

OR

- 3 (a) Discuss the Time-Cost trade off measures adopted in various construction projects.

6

- (b) Define project network updating and methods of resources allocation by giving suitable example.

10

#### UNIT - IV

- 4 (a) Enumerate various types of tenders giving suitability of each.

6

- (b) Discuss the essential characteristics of a tender notice. Differentiate between Earnest Money Deposit (EMD) and Security Deposit.

10

OR

- 4 (a) Define Turn-Key contract and discuss various other types of construction contracts giving suitability, advantages and disadvantages of each.

10

- (b) Define Arbitration and mention reasons for Determination of a Contract.

6

UNIT - V

- 5 (a) Discuss the important aspects of construction safety programmes. What are the major causes of accidents at construction sites ? 10
- (b) Define Environmental Impact Assessment of Construction Projects. 6

OR

- 5 (a) Discuss Project Management Information System (PMIS) mentioning its need, framework and functions. 10
- (b) Discuss the various environmental and social issues related to infrastructural development in our country. 6



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**B.Tech. VIII Semester (Main/Back) Examination - 2013**  
**Civil Engineering**  
**8CE3 Project Planning & Construction Management**

Time : 3 Hours

Maximum Marks : 80  
Min. Passing Marks : 24**Instructions to Candidates:**

Attempt any *five* questions, selecting *one* question from each *unit*. All questions carry *equal* marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

**Unit - I**

1. a) What is Capital Budgeting. Write down important features of Capital Budgeting. (3+5)  
b) Explain Risk Cost Management. (8)

**OR**

1. a) What are the main causes of project failure. (8)  
b) Write down the names of construction project. Discuss the objectives of project management. (8)

**Unit - II**

2. a) Differentiate between PERT & CPM. (8)  
b) Explain the following terms:- (any four)  
i) Activity and its types  
ii) Event  
iii) Activity duration  
iv) Optimistic time  
v) Pessimistic time (4×2=8)

**OR**

2. Draw the network diagram for the following project. Calculate earliest start time, earliest finish time. Latest start time, latest finish time for the activities. Also show critical path on it.



**B. Tech. VIII Semester (Main/Back) Examination-2014**  
**Civil Engineering**  
**Project Planning & Const. Management (8CE3)**

Time : 3 Hours

Maximum Marks : 80  
 Min. Passing Marks : 24

**Instructions to Candidates:**

Attempt any **five** questions, selecting **one** question from **each** unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

**Unit - I**

1. a) Explain "Benefit cost ratio" in brief. (8)  
 b) Write objectives of construction project management. (8)

**OR**

1. a) What do you understand by "Risk cost management" for evaluation of projects? (8)  
 b) Explain categories of construction projects and project development process (8)

**Unit - II**

2. a) Explain project management techniques. (8)  
 b) Write importance of project scheduling in brief. (8)

**OR**

2. Construct a network diagram from the information given in the table below and find the critical path, earliest finish date for the project, total and free floats for activities. (16)

ACTIVITY	IMMEDIATE PREDECESSORS	DURATION(Days)
A	-	4
B	-	8
C	A	6
D	A	8

[Contd....]

E	B	6
F	B	5
G	C	5
H	D,E	3
I	E,F	6
J	G,H	9

### Unit - III

3. a) Explain time cost trade - off process in brief. (8)  
 b) Define cost slope, resources allocation and updating of project networks. (8)

### OR

3. The following table gives normal & crash times as well as crash costs for the activities of a project. Draw the network diagram and find the critical path. In case the project duration is required to be crashed by 2 days, which activities will get the priority in crashing? (16)

ACTIVITY	ESTIMATED DURATION		ACTIVITY COST	
	NORMAL	CRASH	NORMAL	CRASH
1-2	5	2	600	950
2-4	6	3	700	1250
1-3	4	2	100	300
3-4	7	4	400	850
4-7	9	5	600	920
3-5	12	3	1600	2149
4-6	10	6	1500	1850
6-7	7	4	400	590
7-8	6	4	300	420
5-8	12	7	400	850

### Unit - IV

4. a) What are the various types of contracts and tenders? (8)  
 b) Illustrate contract document in brief. (8)

### OR

4. Write short notes on any four of the following: (16)  
 i) Legal aspects of contract  
 ii) Contract negotiation  
 iii) Award of work and process of tendering.  
 iv) Breach of contract and arbitration.  
 v) Detail specifications in tender document.

**Unit - V**

5. a) Explain causes and prevention of accidents at construction sites. (8)
- b) Explain safety measure to be followed in various construction works with neat sketch. (8)

**OR**

5. a) Explain environmental and social aspect of various types of construction projects with example. (8)
- b) Explain benefits of computerized information system in project management. (8)

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Total No of Pages: **2****8E4033****B. Tech. VIII Sem. (Main/Back) Exam., April, 2015  
Civil Engineering  
8CE3 Project Planning & Construction Management****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks: 24***Instructions to Candidates:*

*Attempt any **five** questions, selecting **one** question from each unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used/calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.*

1. NIL2. NIL**UNIT – I**

Q.1 Describe the importance of proper planning of a construction project. Also explain Capital Budgeting. [16]

**OR**

Q.1 Discuss the objectives and functions of construction project management. [16]

**UNIT – II**

Q.2 Differentiate PERT and CPM. Also discuss the various types of floats associated with the activities of project. [16]

**OR**

Q.2 A PERT project consists of the following activities and their time estimates in days (optimistic, most likely and pessimistic) are given in the table. Draw the project network and find the expected completion time of project. Also find the probability that project will be completed. [16]

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- (i) At least 4 days earlier than expected time.  
(ii) Not more than 4 days later than expected time.

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
$t_o$	1	1	2	1	2	2	3
$t_m$	1	4	2	1	5	5	6
$t_p$	7	7	8	1	14	8	15

### UNIT – III

Q.3 Differentiate between resource smoothing and resource leveling. Explain also resource allocation. [16]

OR

Q.3 Discuss the cost control measures adopted in construction projects. [16]

### UNIT – IV

Q.4 Discuss various types of tenders giving suitability merits and demerits of each. [16]

OR

Q.4 What is contract? Explain and four types of contracts. [16]

### UNIT – V

Q.5 Discuss safety and its importance in construction project management. [16]

OR

Q.5 Define Environmental Impact Assessment of Construction Projects? [16]

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**8E8093****8E8093****B.Tech. VIII Semester (Main) Examination, May 2016****Civil Engineering****8CE3A Project Planning & Construction Management****Time : 3 Hours****Maximum Marks : 80****Min. Passing Marks : 24****Instructions to Candidates:**

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly)*

**Unit - I**

1. a) Define Net present value, benefit -cost ratio, internal rate of return and accounting rate of return related to capital investment proposals (8)
- b) Discuss the main causes of failure of construction projects (8)

**OR**

1. a) Discuss the objectives of project planning. What are the different stages involved in planning of a construction project (8)
- b) Discuss the objectives and functions of construction project management (8)

**Unit - II**

2. Discuss the term "project scheduling and its importance in construction projects. Also discuss concept of work - breakdown structure in scheduling of construction projects

Consider a project with the following details. Draw the project network, identify critical path, find the minimum completion time of the project. Also find the total float and free float time for each non-critical activity.



Activity	A	B	C	D	E	F	G	H	I	J	k
Immediate											
Predecessor	-	-	-	A	B	B	C	D	E	H,I	F,G
Duration (Weeks)	2	3	4	6	6	8	5	1	4	6	3

OR

2. Explain the difference between CPM & PERT Network techniques. A PERT Project consists of the following activities and their time estimates in days (Optimistic, most likely and pessimistic) are given in the table. Draw the project network, find the expected completion time of project. Also find the probability that the project will be completed at least 4 days earlier than expected time (16)

Activity	1-2	1-3	1-4	2-6	3-6	4-5	5-6	2-7	6-8	7-8
$t_0$	6	3	5	4	8	4	3	8	7	5
$t_m$	8	7	7	8	10	6	5	10	10	8
$t_p$	11	9	10	14	12	8	6	12	15	12

Unit - III

3. Define direct and indirect project costs. The time - cost data for a project are given below, the project indirect cost is Rs. 60/- per week. (16)

Activity	Normal		crash		cost slope (Rs/Week)
	time	cost	time	cost	
1-2	8	100	6	200	50
1-3	4	150	2	350	100
2-4	2	50	1	90	40
2-5	10	100	5	400	60
3-4	5	100	1	200	25
4-5	3	80	1	100	10

Determine the optimum time duration of the above project and cost associated with this duration, giving step-by-step process of crashing of activities. Also draw the cost-duration curve for this network

OR

3. Discuss any **four** of the following
- Time-cost trade off measures adopted in various construction projects
  - Direct, indirect project costs and concept of cost-slope
  - Project network updating
  - Resources allocation
  - Probability of meeting a schedule time in PERT networks
- (4×4=16)



**Unit - IV**

4. a) Discuss various types of tenders giving suitability of each (8)  
b) Differentiate between (8)  
i) Earnest money deposit(EMD) and security deposit  
ii) Item rate contract and Lump sum contract

**OR**

4. a) Define a Turn - Key contract and discuss essential features of a contract documents (8)  
b) Define arbitration and its advantages mention reasons for determination of a contract. (8)

**Unit - V**

5. a) Discuss the important aspects of safety programs at construction sites. What are the major causes of accidents at construction sites (10)  
b) Define environmental impact assessment of construction projects (6)

**OR**

5. a) Discuss the various environmental and social issues related to construction projects (8)  
b) Discuss project management information system(PMIS) mentioning its need, framework and functions (8)



B.Tech. VIII Sem. (Main&Back) Examination, April/May - 2017

Civil Engg.

8CE3A Project Planning & Construction Management

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

Instructions to candidates :

Attempt any **five questions**, selecting **one question** from **each unit**. All Questions carry **equal marks**. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitable by assumed and stated clearly). Units of quantities used/calculated must be stated clearly.

### Unit - I

1. What are the main objectives of project management? Explain in detail about functions of construction project management. (16)

OR

1. Write short notes on following :
- Risk cost management. (6)
  - Main causes of project failure with special emphasis on project management failure. (10)

### Unit - II

2. a) What is work breakdown structure? Explain with the help of example. (8)
- b) From the help of given network in (fig.-1), determine total float, free float associated with each activity. (8)

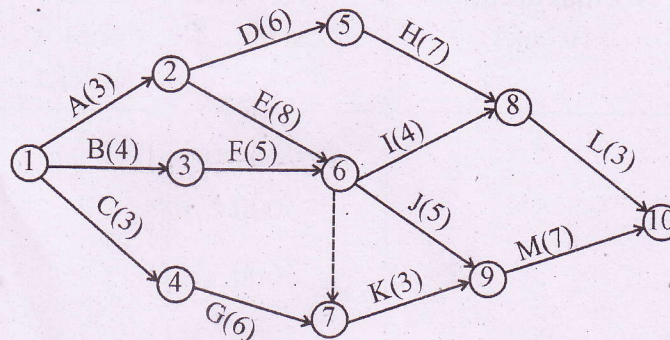


Fig. (1)



OR

2. The three time estimates optimistic time ( $t_o$ ), most likely time ( $t_l$ ), pessimistic time ( $t_p$ ) are shown on the network of a project in following network (fig. (2)). Find out the following.

- a) Standard deviation of network. (8)
- b) Probability of completion of project 10 days prior to total completion period of project. (8)

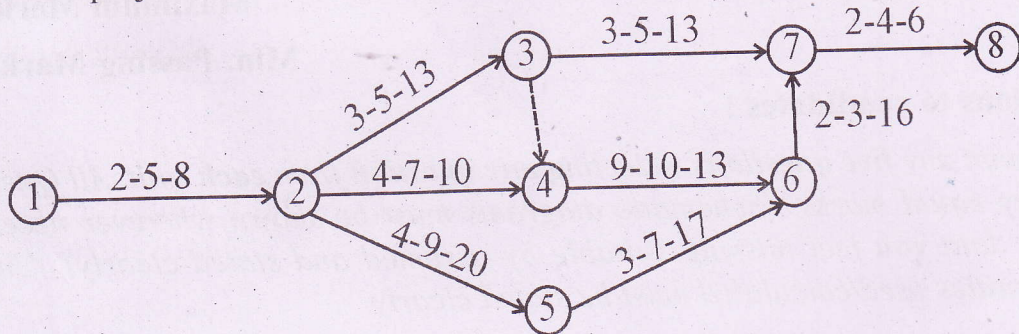


figure (2)

Unit - III

- 3. a) Explain direct and indirect cost associated with project cost with the help of graph showing their variation with time. (12)
- b) Write key differences between resources smoothing and resources levelling. (4)

OR

3. With the help of given table - (1), find the optimum duration and the cost associated with it. The project overhead costs are Rs. 2000 per week. (16)

Table - (1)

Activity	Normal duration (week)	Normal cost (Rs.)	Crash duration (week)	Crash cost (Rs.)
1 - 2	4	4000	2	12,000
2 - 3	5	3000	2	7,500
2 - 4	7	3600	5	6,000
3 - 4	4	5000	2	10,000



**Unit - IV**

4. Explain in brief type of contracts. (16)

**OR**

4. Write short note on following terms :

- a) Arbitration (5)  
b) Types of tenders (5)  
c) Elements for inviting a tender (6)

**Unit - V**

5. Explain causes and prevention of accidents at construction site. (16)

**OR**

5. Explain environmental and social aspect of various types of construction projects with example. (16)

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Total No of Pages: 4

**8E8093**

**B. Tech. VIII Sem. (Main / Back) Exam., April – May 2018**

**Civil Engineering**

**8CE3A Project Planning & Construction Management**

**Time: 3 Hours**

**Maximum Marks: 80**

**Min. Passing Marks: 26**

*Instructions to Candidates:*

*Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used/calculated must be stated clearly.*

1. NIL \_\_\_\_\_

2. NIL \_\_\_\_\_

**UNIT-I**

Q.1 (a) Explain various stage and steps involved in project planning. [8]

(b) Discuss main causes of project failure. [8]

**OR**

Q.1 (a) Explain about Risk cost management. [8]

(b) Discuss function of project management. [8]

**UNIT-II**

Q.2 (a) What is Project Scheduling? Explain importance of project scheduling. [8]

(b) Explain work break down process. [8]

[8E8093]

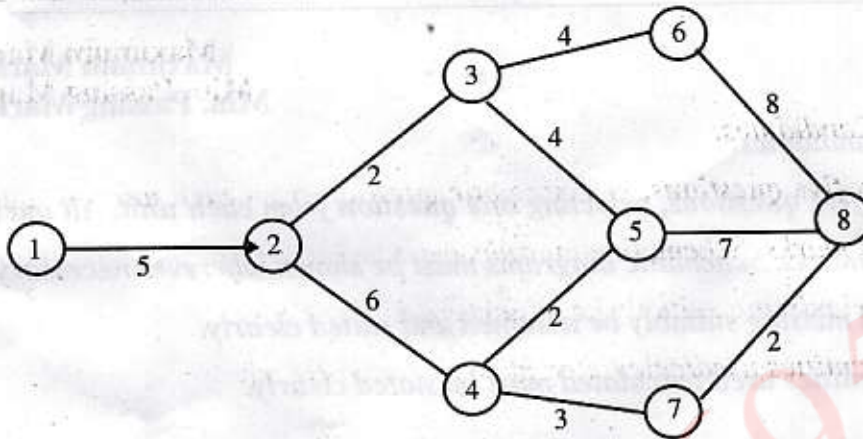
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[7820]



**OR**

Q.2 For the network shown in Fig. calculate the earliest start time, earliest finish time latest start time, latest finish time and total floats in Respect of all the activities of the network. [16]



**UNIT-III**

Q.3 (a) Explain Direct and Indirect Project cost. [8]

(b) Discuss Step in Resources allocation. [8]

**OR**

Q.3 A small project consisting of 7 activities A, B, C, D, E, F and G has its duration and cost data for normal and crash is given below. Draw the network crash to achieve optimum duration and optimum cost if the indirect cost is estimated to Rs. 180 per day of the project duration. [16]



Activity	Normal time (Days)	Cost (Rs.)	Crash time (Days)	Cost (Rs.)
A (1-2)	3	350	2	400
B (2-3)	6	1440	4	1620
C (2-4)	9	2160	8	2220
D (2-5)	7	1300	5	1600
E (3-5)	8	500	7	600
F (4-5)	5	1600	3	1770
G (5-6)	8	450	7	750

#### UNIT-IV

- Q.4 (a) What is Arbitration? Explain advantage of arbitration. [8]
- (b) Explain in brief about contract document. [8]

OR

- Q.4 (a) Discuss lump sum and scheduled contract. [8]
- (b) Explain important condition of contract. [8]

#### UNIT-V

- Q.5 (a) Explain safety measure for Hot Bituminous works. [8]
- (b) Discuss causes and prevention of accidents at construction site. [8]

OR

Q.5 (a) Explain safety measures for demolition. [8]

(b) What are the benefits of computerized information system? [8]

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**B.Tech. VIII - Semester (Main & Back) Examination, April-2019**  
**Civil Engineering**  
**8CE3A Project Planning & Construction Management**

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

**Instructions to Candidates:**

Attempt any **Five questions**, selecting **One question from each unit**. All Questions carry **equal marks**. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.) Units of quantities used/calculated must be stated clearly.

**Unit - I**

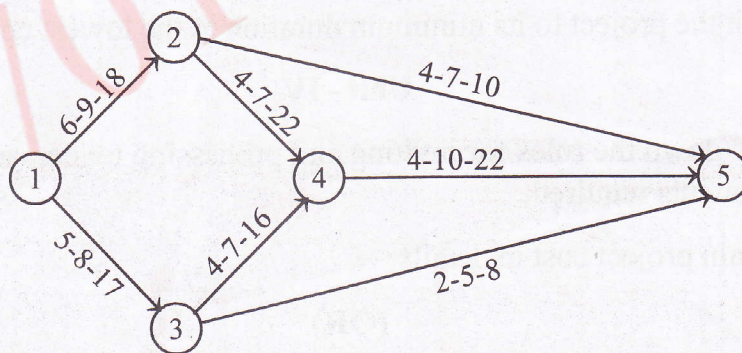
1. a) Discuss the techniques of decision making under risk and uncertainty. (8)
- b) Discuss the functions of Project Manager in construction project. (8)

**(OR)**

1. a) Write down the importance of project planning and enlist the stages involved in the project planning. (8)
- b) Explain different phases associated with project life cycle. (8)

**Unit - II**

2. For the network shown in the figure below, the time estimates for each activity are mentioned. (16)



- a) Find EST, EFT, LST, LFT for each activity.
- b) Determine the probability of completing the project in 35 days.



(OR)

2. a) Explain Gantt chart and write down the limitations of it, compare it with the Milestone chart. (8)
- b) Explain programme Evaluation and Review Technique and distinguish between positive slack, zero slack and negative slack. (8)

**Unit - III**

3. a) Explain resource updating and discuss how this process is implemented. (8)
- b) Write down the differences between Resource levelling and Resource smoothing. (8)

(OR)

3. A project has the following activities, duration, cost and precedence relationships.

Activity	Immediate Predecessor Activity	Normal Time (weeks)	Normal cost (Rs.)	Crast Time (weeks)	Crash cost (Rs.)
A	-	10	11,000	9	15,000
B	-	15	20,000	13	25,000
C	A	10	9,000	6	20,000
D	A	20	25,000	18	30,000
E	C	15	20,000	10	35,000
F	B	17	20,000	15	30,000
G	F	12	15,000	10	25,000
H	D, F	9	12,000	8	18,000
I	G, H	7	10,000	6	15,000

- a) Determine the critical path and the duration of completion of project.
- b) Crash the project to its minimum duration at the lowest cost. (16)

**Unit - IV**

4. a) Write down the rules for inviting and processing tenders and note down the documents required. (12)
- b) Explain project cost in details. (4)

(OR)

4. a) Discuss the different criteria by which a contract can be terminated. (8)
- b) Discuss the case study of unbalanced tenders. (8)



**Unit - V**

5. a) Explain the safety measures to be followed while handling explosive. (8)  
b) Discuss the social aspects of construction management. (8)

**(OR)**

5. a) Mention the safety measures for scaffoldings, Ladder framework. (8)  
b) Explain different features of Integrated Project Management Information system. (8)
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B.Tech. VIII-Sem (Main & Back) Exam September 2020  
Civil Engineering  
8CE3A Project Planning & Construction Management

Time: 2 Hours

Maximum Marks: 48  
Min. Passing Marks: 16

Instructions to Candidates:

Attempt **three questions**, selecting **one question each** from any three unit.  
All Questions carry **equal marks**. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.  
Units of quantities used/ calculated must be stated clearly.  
Use of following supporting material is permitted during examination.  
(Mentioned in form No. 205)

1. NIL

2. NIL

### UNIT- I

- Q.1 (a) Discuss the criterions to judge the worthwhileness of capital projects. What are the main causes of project failure? [8]
- (b) Describe the project management and social aspects of various type of construction project. [8]

OR

- Q.1 (a) What are the important aspects of project planning? Discuss the project development process. [8]
- (b) Discuss the objectives of construction project management. [8]

### UNIT- II

- Q.2 (a) Discuss the importance of project scheduling. [8]
- (b) Define CPM and PERT techniques. [8]

OR

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[5200]

Q.2 A PERT project consists of the following activities and their time estimates in days optimistic, most likely and pessimistic are given in the table. Draw the project network, find the expected completion time of project. Also find the probability that the project will be completed at least 4 days earlier than expected time. [16]

Activity	1 - 2	1 - 3	1 - 4	2 - 6	3 - 6	4 - 5	5 - 6	2 - 7	6 - 8	7 - 8
$t_o$	6	3	5	4	8	4	3	8	7	5
$t_m$	8	7	7	8	10	6	5	10	10	8
$t_p$	11	9	10	14	12	8	6	12	15	12

### UNIT- III

- Q.3 (a) Discuss in brief the resources allocation problem. What are the methods of solving the problem? [8]
- (b) Explain the types of costs in construction projects. [8]

**OR**

Q.3 The time-cost data of a project are given below, the project indirect cost is ₹ 60 per week - [16]

Activity	Normal		Crash		Cost slope (₹/week)
	time (weeks)	cost (₹)	time (weeks)	cost (₹)	
1 - 2	8	100	6	200	50
1 - 3	4	150	2	350	100
2 - 4	2	50	1	90	40
2 - 5	10	100	5	400	60
3 - 4	5	100	1	200	25
4 - 5	3	80	1	100	10

Determine the optimum time duration of the above project and cost associated with this duration, giving step by step process of crashing of activities. Also draw the cost-duration curve for this network.



### UNIT- IV

- Q.4 (a) Discuss different types of tenders with their suitability. [8]  
(b) Explain tender bidding. [8]

**OR**

- Q.4 (a) Explain legal aspects of contract documents. [10]  
(b) Define the following terms – [3×2=6]  
(i) Contract negotiation  
(ii) Breach of contract  
(iii) Arbitration

### UNIT- V

- Q.5 (a) Write about the causes and prevention of accidents at construction site. [8]  
(b) Define project management information system. [8]

**OR**

- Q.5 (a) Explain the safety measures that should be followed in road construction with hot bitumen. [8]  
(b) Discuss the Environmental and Social aspects of various types of construction projects. [8]