



Name :

Roll No. :

Invigilator's Signature :

**CS/B.TECH(CE-NEW)/SEM-8/CE-803/2010
2010**

**CONSTRUCTION MANAGEMENT, TECHNOLOGY &
DEPARTMENTAL PROCEDURE**

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words as
far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :
 $10 \times 1 = 10$

- i) Which of the following does not represent an activity ?
 - a) Site located
 - b) Foundation is being dug
 - c) The office area is being cleaned
 - d) The invitations are being sent.
- ii) Earliest finish of an activity is always
 - a) greater than earliest event time of the following node
 - b) less than earliest event time of the following node
 - c) less than or equal to earliest event time of the following node
 - d) greater than or equal to earliest event time of the following node.



- iii) Free float for any activity is defined as the difference between
- a) its earliest finish time and earliest start time for its successor activity
 - b) its latest start time and earliest start time
 - c) its latest finish time and earliest start time for its successor activity
 - d) its earliest finish time and latest start time for its successor activity.
- iv) Critical path
- a) is always longest
 - b) is always shortest
 - c) may be longest
 - d) may be shortest.
- v) The independent float affects only
- a) preceding activities
 - b) succeeding activities
 - c) the particular activity involved
 - d) none of these.
- vi) Which of the following types of pumps can be used for concreting ?
- I. Piston operated
 - II. Pneumatically operated
 - III. Centrifugally operated, with straight blades
 - IV. Screw type.

Select the correct answer using the codes given below :

Codes :

- a) I and III
- b) I and II
- c) I, III and IV
- d) II and IV.



- vii) Grader is used mainly for
- a) trimming and finishing
 - b) shaping and trimming
 - c) finishing and shaping
 - d) finishing, shaping and trimming.
- viii) Which one of the following is not an excavating and moving type of equipment ?
- a) Bulldozer
 - b) Clam shell
 - c) Scraper
 - d) Dump truck.
- ix) The most suitable type of equipment for compaction of cohesive soils is
- a) smooth-wheeled rollers
 - b) vibratory rollers
 - c) sheep foot rollers
 - d) tampers.
- x) Activities *A* and *B* can be started independently. Activity *E* can be started only when *A* and *B* have been completed. Activity *D* follows *A* and precedes *F*. Activities *E* and *F* merge at the objective event. The network plan will be as in

a)

b)

c)

d)



- xi) Sinking fund is
 - a) the fund for rebuilding a structure when its economic life is over
 - b) raised to meet maintenance costs
 - c) the total sum to be paid to the municipal authorities by the tenants
 - d) apart of the money kept in reserve for providing additional structures and structural modifications.
- xii) During the construction period, price variation clause in contracts caters to
 - a) increase in rates of only important materials
 - b) variation in cost in materials element, labour element and petrol-oil-lubricant element
 - c) variation in total cost of the project on an ad hoc basis
 - d) rate of inflation.
- xiii) At a work site, statistical quality control of concrete means
 - a) measurement of risks to eliminate failures
 - b) applying the theory of probability to sample testing or inspection
 - c) reduction in wastage of inspection costs
 - d) reduction in costs for the removal of defects.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. A project consists of the following activities and activity times. Find

- critical path
- what is the project completion time
- compute the total floats and free floats for the activities.

<i>Activity</i>	<i>preceded by</i>	<i>Time (days)</i>
A	—	3
B	—	4
C	A, B	5
D	B	6
E	D	7
F	C, E	8
G	D	9

3. A project has the following characteristics :

- Critical path in terms of nodes is 10-20-40-50-70-90-100
- Earliest expected time of the project, $T_E = 44$ days
- Scheduled completion time, T_S is 48 days



- iv) Along the critical path, the following are the optimistic t_o and pessimistic t_p times.

Activity	t_o	t_p
10-20	4	12
20-40	8	16
40-50	0	0
50-70	3	9
70-90	4	12
90-100	4	16

Find the probability of completing the project in scheduled time.

Normal deviate	Probability percentage
+ 1.1	86.4
+ 1.2	88.5
+ 1.3	90.3
+ 1.5	93.3.

4. Distinguish between earnest money and security deposit.
5. Discuss the various types of tenders.
6. What are the types of contract ? When a contract can be terminated ?
7. Write short notes on the following :
Dozer, Scraper, Sheep Foot Roller.
8. Briefly describe the equipment's used in bituminous pavement construction.



GROUP – C

(Long Answer Type Questions)

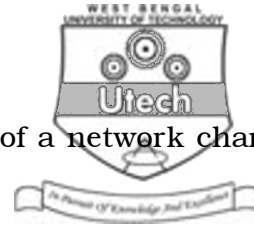
Answer any *three* of the following. $3 \times 15 = 45$

9. a) What are the duties and responsibility of owner ? 6
- b) What is contract ? What are the essential features of contract ? 1 + 4
- b) What are the advantages and disadvantages of percentage rate contract ? 4
10. a) What is arbitration ? What is the need of arbitration ? 1 + 2
- b) What are the wanted qualifications of arbitrator ? 4
- c) What are the ground to challenge an arbitrator ? 4
- d) What is security deposit ? 4

11. The activities mentioned below constitute a project :

Task	A	B	C	D	E	F	G	H	I
Duration (Days)	8	10	8	10	16	17	18	14	9
Preceding Activity	—	—	—	A	A	B,D	C	C	F, G

Draw the network to find the critical path. Also determine Total, Free, Independent float of each activity. 15



12. Present the following activity in the form of a network chart and determine

- Critical path
- Expected time of each activity and the expected time of completion of the project.
- Standard deviation of each activity.

15

Activity	1-2	2-3	2-4	3-5	4-5	4-6	5-7	5-8	7-9	8-9	9-10	6-10
t_o	4	1	8	3	0	3	3	4	4	2	4	4
t_m	8	4	12	5	0	6	6	6	8	5	10	6
t_p	12	7	16	7	0	9	9	8	12	8	16	8

- Find out the maximum ground coverage area of the plot as given below for a building of (G + 3).

Dia.

Residential building as per municipal law. 5

- What are the essential documents for tender document ? 5

- What are the general requirements for fire protection of a mercantile building ? 5