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 × 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.

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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)

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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.

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GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

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

   a) critical path

   b) what is the project completion time

   c) compute the total floats and reee floats for the activities.

Activity	preceded by	Time (days)
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 :

   i) Critical path in terms of nodes is 10-20-40-50-70-90-100

   ii) Earliest expected time of the project, T_E = 44 days

   iii) Scheduled completion time, T_S is 48 days

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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.

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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

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

   a) Critical path

   b) Expected time of each activity and the expected time of completion of the project.

   c) 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

13. a) 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

   b) What are the essential decuments for tender document ?   5

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

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