

Name :

Roll No. :

Invigilator's Signature :

CS/B. TECH (CE-NEW)/SEM-8/CE-803/2011

2011

**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) An Activity is a task
 - a) started
 - b) completed
 - c) being performed
 - d) none of these.
- ii) "Foundation is being dug" is
 - a) an event
 - b) an activity
 - c) both
 - d) none.
- iii) A "CPM" Network is
 - a) activity oriented
 - b) event oriented
 - c) both "a" & "b"
 - d) any one of "a" or "b".
- iv) Grader is used mainly for
 - a) trimming and finishing
 - b) shaping and trimming
 - c) finishing and shaping
 - d) finishing, shaping and trimming.

CS/B. TECH (CE-NEW)/SEM-8/CE-803/2011

- v) Which one of the following is not an excavating and moving type of equipment ?
 - a) bulldozer
 - b) clam shell
 - c) scraper
 - d) dump truck.
- vi) The most suitable type of equipment for compaction of cohesive soil is
 - a) smoothed wheeled rollers
 - b) vibratory rollers
 - c) sheep foot rollers
 - d) tampers.
- vii) If optimistic & pessimistic time is denoted by t_o and t_p then; variance can be obtained by :
 - a) $((t_o - t_p)/6)^2$
 - b) $((t_p - t_o)/6)^2$
 - c) $((t_p - t_o)/4)^2$
 - d) none of these.
- viii) "PERT" Network is
 - a) event based
 - b) activity based
 - c) both event and activity based
 - d) duration based.
- ix) Pre-tender stage requires
 - a) acquisition of land
 - b) selection of site
 - c) finalisation of alignment of work
 - d) all of the above.
- x) While filling the tender for any work the contractor considers
 - a) site survey
 - b) availability of construction materials
 - c) availability of labour
 - d) all of the above.
- xi) Slack is defined by (T_E is the earliest expected time and T_L is the latest allowable time)
 - a) $T_E - T_L$
 - b) $T_L - T_E$
 - c) $T_E + T_L$
 - d) T_L/T_E .

CS/B. TECH (CE-NEW)/SEM-8/CE-803/2011

GROUP – B**(Short Answer Type Questions)**Answer any *three* of the following.

$$3 \times 5 = 15$$

2. Using Fulkerson's Rule, number the events of the network shown in the Fig 1 below :

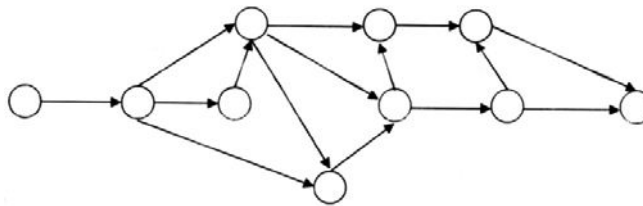


Fig 1

3. Write down the organizational set up in the PWD of the WB Govt.
4. What do you understand by a project ? What is the objective of project management ? Distinguish between CPM and PERT networks.
5. Discuss the various types of tenders.
6. Write short notes on any three.
Dozer, Scraper, Sheep foot roller, Shovel, Backhoe.

GROUP – C**(Long Answer Type Questions)**Answer any *three* of the following. $3 \times 15 = 45$

7. The network for a construction project is shown in Fig 2 below. The three time estimates for each activity are given along each activity arrow. Compute the following : $5 + 5 + 5$
- Expected time of completion of each activity
 - Earliest expected time of each event

CS/B. TECH (CE-NEW)/SEM-8/CE-803/2011

c) Latest allowable occurrence time for each event.

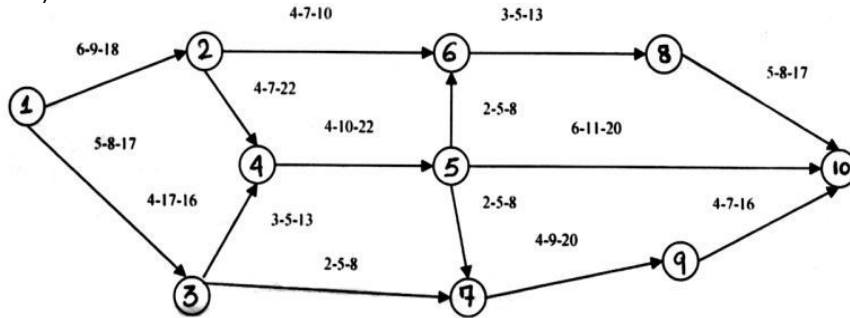


Fig 2

8. a) Calculate the ideal output of a shovel with 1.5 m^3 bucket capacity having a cycle time of 30 seconds. The soil has a swell factor of 20%. If the shovel is filling a dumper of 12 m^3 capacity and 2 minutes are lost for positioning of the dumper after each loaded dumper moves, what will be the effect on the output ?
- b) A dozer with a blade capacity of 3 m^3 has to strip soil that has a swelling factor of 25% in thin horizontal layers for a distance of 50m. The dozer's forward speed is 2 km/hr and return speed is 5 km/hr. In each cycle it consumes a fixed time of 0.4 mins for shifting gears, adjusting blade, etc. Compute the output of the dozer.
- c) Differentiate between static steel drum roller and vibratory roller. 6 + 6 + 3
9. a) Classify buildings based on fire-protection.
- b) Describe dry riser and wet riser
- c) Explain emergency lighting and escape lighting.
10. Explain the responsibilities of the following in a project :
 - a) Engineer
 - b) Contractor
 - c) Architect
 - d) Owner
11. Discuss any *three* of the following : 3 × 5
 - a) Earliest event time and latest event time
 - b) Time estimates for PERT activities
 - c) Total float and free float
 - d) Dummy activity