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Roll No. of candidate

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BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatkhowapara
Guwahati - 781017

2023

B.Tech. 8th Semester End-Term Examination

Civil

CONSTRUCTION ENGINEERING AND MANAGEMENT

(New Syllabus (w.e.f. 2017-18) New Syllabus (w.e.f. 2018-19))

Full Marks – 70

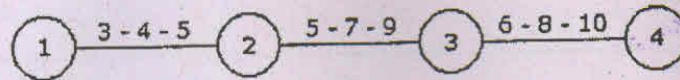
Time – Three hours

Answer question No. 1 and any *four* from the rest.

1. (A) Fill in the blanks : (3 × 1 = 3)
- (i) The most suitable equipment for compaction of cohesive soil is _____
- (ii) A construction project involving Rs. 1100 crore is termed as _____
- (iii) Critical path lies-along the activities having total float as _____
- (B) Choose the correct option : (7 × 1 = 7)
- (i) A construction schedule is prepared after collecting _____
- (a) Number of operations
- (b) Output of labour
- (c) Output of machinery
- (d) All the above
- (ii) Time and progress chart of a construction is also known as :
- (a) Bar chart
- (b) Gantt chart
- (c) Modified Mile stone chart
- (d) All the above

[Turn over

- (iii) Choose the correct statement in regards to construction project :
- Projects are of non-repetitive type
 - Time line is always followed in a project
 - Final cost of project is always more than the estimated cost
 - None of the above
- (iv) The area under Beta distribution curve is divided into two equal parts by
- Most likely time
 - Optimistic time
 - Pessimistic time
 - Expected time
- (v) For the network shown below, the expected time for the activity is



- 1-2 is 4
 - 2-3 is 7
 - 3-4 is 8
 - All the above
- (vi) A CPM family essentially includes
- Critical Path Analysis (CPA)
 - Critical Path Plotted (CPP)
 - Critical Path Scheduling (CPS)
 - Minimum Cost Expenditure (MCE)
 - All the above
- (vii) The direct cost of a project with respect to normal time is
- Minimum
 - Maximum
 - Zero
 - Not accountable

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2. (a) Differentiate between "dump truck" and "dumper". (3)
- (b) A construction project possesses certain characteristics during its life cycle. Explain in brief. (5)
- (c) Briefly explain how the construction equipments can be categorized in general. (7)

3. (a) State the lists of responsibilities of a project engineer for successful completion of a construction project. (3)
- (b) What are the different aspects of management of a construction project? Describe them in brief. (5)
- (c) Under what circumstances a structure needs to be demolished? Describe in brief the steps to be followed for demolition of a structure. (2 + 5 = 7)
4. (a) What is project cost management? Describe briefly the different stages involved in management of the project cost. (2 + 5 = 7)
- (b) A grout curtain is to be constructed underneath a dam. This involves drilling through the underlying rock. The total length of the grout holes to be drilled is 21390 m distributed over 388 holes. The following table shows the work involved into five activities along with sued resources. (8)

Act	Description	No. of holes	Length (m)	No. of pits
A-1	Grout-1	154	7400	4
A-2	Grout-2	53	2870	2
A-3	Grout-3	55	3130	3
A-4	Grout-4	79	4510	4
A-5	Grout-5	47	3480	3

Assume : drilling and grouting rate equals 20m/day. The drilling rig requires half-day moving from a hole to another. The cost of equipment is Rs. 2,300/wk/unit, cost for grout material is Rs. 5.8/m. Assume 6 days in a week. Calculate the direct unit cost using a suitable method.

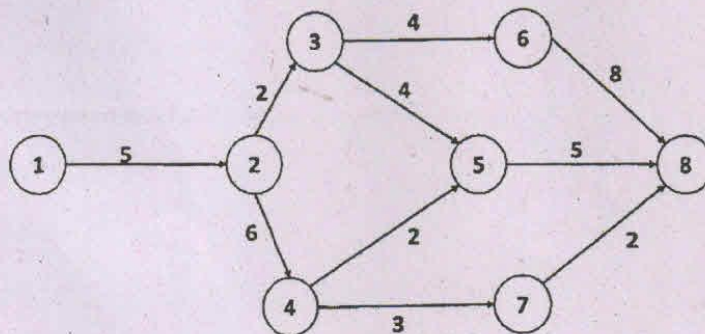
5. (a) What do you understand by 'scheduling' of a project? Describe briefly the methods generally employed for scheduling a project. (1 + 4 = 5)
- (b) A building project consists of some activities as shown in the figure below. (10)

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Compute

- (i) activity time
(ii) total float

Also identify the critical path.



6. (a) Explain the concept behind total quality management in a construction project. (7)
- (b) What do you understand by project procurement management? List out the inputs and outputs of (2 + 3 + 3 = 8)
- (i) Control procurement
- (ii) Close procurement
7. (a) What are the common causes of accidents in construction site? Suggest some preventive measures. (3 + 3 = 6)
- (b) Write short notes on (*any three*) (3 × 3 = 9)
- (i) Float in network analysis
- (ii) Properties of events
- (iii) Quality assurance
- (iv) Power shovel
- (v) Tendering

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