

Code No: R21012

R10

SET - 1

II B. Tech I Semester Supplementary Examinations, June - 2015
CONSTRUCTION MATERIALS AND MANAGEMENT
(Civil Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

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- 1 a) Explain briefly about the manufacture of tiles.  
b) Write short notes on the process of burning of bricks in Intermittent kilns with neat sketch.
  
- 2 a) Explain in brief about alternative materials for wood.  
b) Define the terms brick masonry: Header, Stretcher, Quoin, Queen closure, King closure, Course, Bed joint and Facing.
  
- 3 a) What are the various tests conducted in the laboratory for the cement.  
b) Explain briefly the manufacture of lime.
  
- 4 a) Differentiate between paints and distemper.  
b) Why distemping should be preferred to white washing or colour washing?
  
- 5 a) What is bulking of sand? Explain briefly.  
b) Classify the aggregates based on shape and surface texture of aggregate.
  
- 6 a) Write short notes on functions of geo-membranes and geo-composites.  
b) Explain in detail the importance of concrete mixers in construction work.
  
- 7 a) Explain briefly the project scheduling concepts.  
b) Write short notes on computations of times and floats and explain their significance.

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- 8 The network of a certain project is shown in Figure.1 with the estimated durations of various activities. Determine the following: i) Earliest event time and latest event time ii) Earliest and latest start and finish times of each activity. iii) Total and free floats for each activity. iv) Critical path for the network.

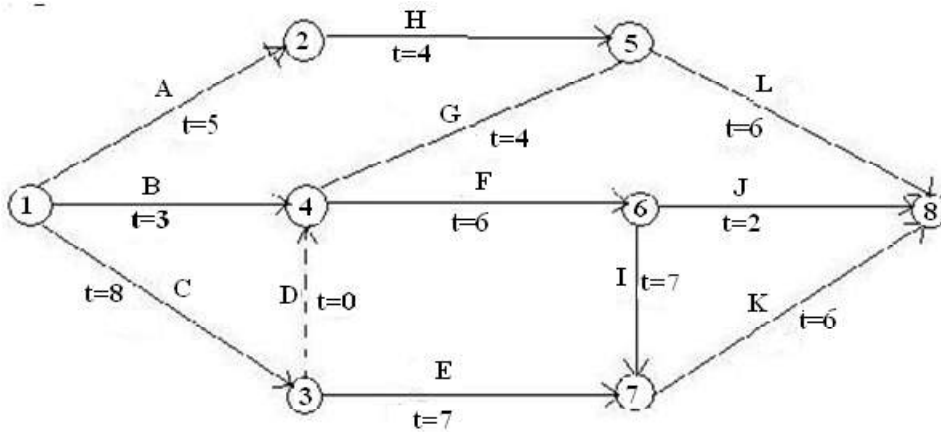


Figure 1

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- 1 a) Enumerate the properties and uses of Gypsum and Bitumen.
b) What are the harmful ingredients in brick earth and explain them.
- 2 a) What is seasoning of timber? State the objects of seasoning.
b) Write short notes on cavity walls.
- 3 a) Explain the stages of conveyance, placing compaction and curing of concrete in construction.
b) Describe in brief any type of manufacture of cement with the help of flow diagram?
- 4 a) Describe in brief the construction of R.C.C floor.
b) What are the requirements of good 'Form work'?
- 5 a) Write short notes on Marshall's Method of Bituminous Mix Design.
b) Explain how the aggregate toughness can be measured.
- 6 a) Enumerate the tests on geotextiles.
b) Explain the reasons why some innovative construction techniques are not successful in bringing down costs.

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- 7 The durations and direct costs for each activity in the network of a small construction contract under both normal and crash conditions are given in the following table. Establish the least cost for expediting the contract. Determine the optimum duration of the contract assuming the indirect cost is LE 125/day.

Activity	Preceded by	Normal		Crash	
		Duration (day)	Cost(LE)	Duration (day)	Cost(LE)
A	-	12	7000	10	7200
B	A	8	5000	6	5300
C	A	15	4000	12	4600
D	B	23	5000	23	5000
E	B	5	1000	4	1050
F	C	5	3000	4	3300
G	E,C	20	6000	15	6300
H	F	13	2500	11	2580
I	D,G,H	12	3000	10	3150

- 8 a) Differentiate clearly between PERT and CPM methods.
 b) Draw a PERT network for the following and find expected mean time, variance and standard deviation of the project?

Activity	0-1	0-2	1-2	1-3	1-4	2-5	3-4	4-5
Time(days)	2-3-10	4-5-6	0-0-0	6-7-8	1-5-9	3-5-19	0-0-0	1-3-5

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SET - 3

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- 1 a) State the characteristics of Roof tiles: Explain briefly the Mangalore tiles and Alahabad tiles.  
b) Describe briefly the classification of tar and the specifications of bitumen as a building material.
- 2 a) Write short notes on reinforced plastics.  
b) Describe the ashlar stone masonry and state its uses in construction of structures.
- 3 a) Discuss various laboratory tests to be conducted on concrete.  
b) Explain why gypsum is added during the manufacture of cement?
- 4 a) What are the various types of arches, Explain any one  
b) State the differences between pointing and plastering.
- 5 a) Explain in brief about adsorption and moisture content of aggregate  
b) Write short notes on Sieve analysis. And also explain what is meant by grading curve.
- 6 a) Write short notes on functions and uses of Geogrids.  
b) Write a note on the different types of materials that help in lowering costs of construction.

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- 7 Table below shown jobs, their normal time cost and crash time, cost for a project.

| Job | Normal time(days) | Cost (Rs.) | Crash time(days) | Cost (Rs.) |
|-----|-------------------|------------|------------------|------------|
| 1-2 | 6                 | 1400       | 4                | 1900       |
| 1-3 | 8                 | 2000       | 5                | 2800       |
| 2-3 | 4                 | 1100       | 2                | 1500       |
| 2-4 | 3                 | 800        | 2                | 1400       |
| 3-4 | Dummy activity    |            |                  |            |
| 3-5 | 6                 | 900        | 3                | 1600       |
| 4-6 | 10                | 2500       | 6                | 2500       |
| 5-6 | 3                 | 500        | 2                | 800        |

Indirect cost of the project is Rs: 300 per day

- i) Draw network of the project
  - ii) What is normal duration of the project
  - iii) Find the optimum duration and minimum project cost.
- 8 a) What is the importance of CPM and PERT in project scheduling.
- b) Draw a typical cost – duration curve and show on the optimum duration and minimum project Cost.

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- 1 a) State the general properties and importance of glass.
b) Give an account of availability and uses of common building stones.
- 2 a) State and explain the decay of timber and its precautions.
b) What are the requirements of good partition wall? Explain.
- 3 a) What are air entraining agents? How these air entraining agents help in improving performance of cement?
b) Compare and contrast advantages and disadvantages of using lime and cement in construction works.
- 4 a) What are the advantages and disadvantages of pitched and flat roofs?
b) Explain briefly the requirement of good staircase. How are treads and risers proportioned for a stair?
- 5 a) Explain different methods for measurement of moisture content of aggregates in brief.
b) What is meant by grading of aggregate? Explain Standard grading curve.
- 6 a) Write short notes on applications of geosynthetics.
b) Briefly explain factors which affect the choice of equipment
- 7 a) What are the short comings of bar charts? How are these removed?
b) Define 'latest start time' and 'latest finish time', and also explain how these can be determined?
- 8 a) Explain the method of time –cost optimization of project network.
b) What do you understand by critical path? How it is determined?