

Reg. No. : **E N G G T R E E . C O M**

Question Paper Code : 30093

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

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Third Semester

Civil Engineering

CE 3302 – CONSTRUCTION MATERIALS AND TECHNOLOGY

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the features of first class bricks.
2. List advantages and disadvantages in use of Lime as mortar for masonry walls.
3. Define the term seasoning in wood.
4. Write any two advantages of HYSD steel.
5. List few structures that use slip form construction.
6. Mention the different types of stone masonry.
7. List the name of equipment/machineries used to compact concrete.
8. Write any two heavy equipment used in construction.
9. Classify CPM from PERT.
10. Recite critical activities.

PART B — (5 × 13 = 65 marks)

11. (a) Identify the field and laboratory test to evaluate the quality of bricks.
Or
- (b) Explain the characteristics of various types of concrete blocks and write their applications.
12. (a) Explain the different types of glass and FRP along with its applications.
Or
- (b) Explain the use and application of steel and timber in construction.
13. (a) Explain the different types of foundation along with its features with neat sketch.
Or
- (b) Explain about mechanism of cross ventilation in buildings along with neat sketch.
14. (a) Discuss the advantages of using equipment for various types of construction works.
Or
- (b) Assume that a two floor residential building is proposed to construct. Identify various types of equipment that can be used in series of steps in construction process.
15. (a) Draw a network diagrams on A-O-A basis for the following project using the activity relationship given below and number the events using Dr.Fulkerson's rule. Determine the critical path and duration of the project.

Activity	Duration (days)	Activity relationship
A	8	A is first operation
B	7	B, C and D follow A
C	2	—
D	3	—
E	5	E and F proceeded by D
F	6	—
G	3	G depends C for its start
H	4	H succeeds B, G and E and H and F are terminal activities

Or

(b) Conduct PERT analysis and determine the following for the given project.

–Expected time of occurrence of activities

–Earliest and latest allowable occurrence times for events

–Slack for events and total floats for activities

Act (i-j) (days)	1-2	2-3	2-4	2-6	3-5	3-6	4-6	5-6
t_o	4	8	4	5	3	0	5	2
t_m	6	10	4	7	5	0	7	4
t_p	8	12	4	9	9	0	12	6

PART C — (1 × 15 = 15 marks)

16. (a) A lawyer's office is to be constructed with stone masonry and cost is not a constraint, suggest a suitable masonry and give the details of construction of masonry.

Or

(b) A food kiosk of size 5m × 3m is to be constructed with brick masonry which will reduce the number of brick and mortar used. Draw the details of the brick bonding.

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