

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022 CIVIL ENGINEERING

(2020 SCHEME)

Course Code : 20CET309

Course Name: Construction Technology and Management

Max. Marks : 100

Duration: 3 Hours

Instructions: Use of standard normal distribution table is permitted

PART A

(Answer all questions. Each question carries 3 marks)

1. How the initial setting time and final setting time of cement are arrived at? Specify the IS standards for the setting time of cement.
2. Summarize the methods for checking the suitability of water to be used for construction works.
3. Enumerate the factors affecting workability. Describe any one method of measuring workability.
4. Discuss the importance of damp proof course in building.
5. Explain the concept and advantages of prefabrication in construction.
6. Outline the stages of concrete 3D printing.
7. Enumerate the life cycle of construction project.
8. Outline the features of BOT contract.
9. List the advantages and disadvantages of bar charts.
10. Distinguish between CPM and PERT.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) Outline the properties and uses of superplasticizers and retarders. How the addition of these admixtures is beneficial to different works with concrete? (7)
b) Enumerate how the bulking of fine aggregate affect the mix design? Explain the method of determination of bulking of fine aggregate. (7)

OR

12. a) Describe the manufacturing of cement by wet process with the aid of a flow chart. (7)

- b) Describe the properties and uses of veneer and multi wood. (7)

MODULE II

13. Explain in detail how the compressive strength, flexural strength and tensile strength of concrete are determined. (14)

OR

14. a) Describe the objectives and types of pointing works. (7)
b) Compare the structural behavior of load bearing and framed construction. List the advantages and disadvantages of both types of construction. (7)

MODULE III

15. a) Enumerate the salient features of rapid wall construction. (7)
b) Explain the requirements of a good form work. (7)

OR

16. a) Elaborate the causes of RCC and steel structure failures. (7)
b) Differentiate between pre-tensioning and post tensioning. (7)

MODULE IV

17. List the different types of contract for construction works. Elaborate any four types of contract. (14)

OR

18. Describe any four types of tenders and explain the stages in tendering. (14)

MODULE V

19. a) Define a) Optimistic time b) Pessimistic time and c) Most likely time (4)
b) The following table lists the activities, duration and their sequence of operation. Draw the network diagram, find EST, EFT, LST and LFT. Also identify the Critical Path.

Activity	Duration(days)	Activity	Duration(days)
1-2	8	4-7	0
1-3	10	5-6	4
1-4	5	5-7	3
2-7	6	5-8	6
3-4	3	6-8	5
4-5	7	7-8	5

(10)

OR

- 20 a) Differentiate between Slack and Float (4)
b) A small project consists of seven activities. The time estimates in weeks of the different activities are given below. (10)
(a) Draw the AON network

- (b) Determine the critical path
(c) What is the probability of completing the project within 18 weeks?
(d) What is the probability of completing the project 3 weeks earlier than the expected time?

Activity/ Times	1-2	1-3	1-4	2-5	3-5	4-6	5-6
t_o	1	1	2	1	2	2	3
t_m	1	4	2	1	5	5	6
t_p	7	7	8	1	14	8	15
