Register No.: ..... Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (R,S), DECEMBER 2023

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. Outline the role of accelerators in concrete.
2. How is fibre board manufactured? What are its properties?
3. Distinguish between segregation and bleeding in concrete.
4. Discuss the various objectives of pointing.
5. Explain 3D printing in construction.
6. Enumerate the advantages of slip form construction.
7. List the stages in tendering.
8. Summarize the advantages and disadvantages of Turnkey contracts.
9. Illustrate the use of a material schedule in organizing construction activities at a site.
10. Differenciate between CPM and PERT.

PART B

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

MODULE I

11. a) Discuss the role of super plasticizers in concrete. (6)
    b) Compare standard consistency and setting time tests on cement. (8)

OR

12. a) How is the compressive strength of cement tested? (8)
    b) Explain the importance of using graded aggregates in concrete making. (6)

MODULE II

13. a) Explain the indirect tests to determine the tensile strength of concrete. (7)
    b) Summarize the steps involved in concreting. (7)

OR

14. a) Distinguish between load bearing and framed construction. (6)
    b) Explain various types of arches with neat sketches. (8)

MODULE III

15. a) Enumerate the various types of formwork available. (6)
    b) Explain with a neat figure, the working principle of voided slab technology. What are its advantages? (8)

OR

16. a) Explain the concept of prestressing concrete. (4)
    b) Explain the causes of failure in RCC structures. (10)

MODULE IV

17. List any five types of contract. Explain any three types in detail stating the advantages and disadvantages of each. (14)

OR

18. Discuss the details included in the DPR of a double storeyed residence. (14)

MODULE V

19. a) Compare networks over bar charts. (4)
    b) Determine the expected completion time, variance and critical pathof the project given below.

Activity	A	B	C	D	E	F	G	H
Predecessors	-	-	A	B	A	C,D	C,D,E	F
T_0 days	2	2	3	4	3	4	3	4
T_L days	5	6	4	6	5	6	5	8
Tp days	7	9	9	10	12	13	6	13

(10)

Calculate the probability of completing the project in 27 days.

OR

20. a) The following table gives the activities in a construction project. Form the AoN network and find the critical path and its duration.

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration (Days)	20	25	10	12	6	10

(10)

Find free float and total float for each activity.

    b) Differentiate between float and slack. (4)

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