

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (S), FEBRUARY 2024**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 is fiberboard different from particle board in terms of composition and usage?
2. Provide the chemical composition of ordinary Portland cement and briefly explain the significance of each component.
3. Describe concept of workability in fresh concrete. Discuss the factors that can affect the workability of a concrete mix.
4. Explain the different types of paints commonly used in building projects and their applications.
5. Discuss the specific causes of failures in reinforced concrete (RCC) structures.
6. Enumerate the stages of 3D printing technology in construction projects.
7. Describe the three main phases of a construction project life cycle and the primary activities associated with each phase.
8. Describe the purpose of a Detailed Project Report (DPR), and why is it considered a crucial document in the project planning process?
9. Differentiate bar charts and milestone charts as graphical tools for construction scheduling.
10. How does PERT differ from the Critical Path Method (CPM)?

PART B***(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. a) Evaluate the suitability of water to be used for construction works. (4)
b) Compare and contrast the functions of chemical admixtures and mineral admixtures. Comment on the suitability and use of each type in concrete construction. (10)

OR

12. a) Describe the laboratory evaluation of compressive strength of cement. (4)

- b) Describe the dry process of manufacturing of cement with help of a flow chart. (10)

MODULE II

13. a) Describe pointing in construction. Discuss various types of pointing methods. (7)
- b) Describe lintels and arches in construction. Provide an overview of the types of arches commonly used in architecture and engineering. (7)

OR

14. a) Discuss the different tests used to determine the strength of concrete in compression, tension, and flexure. (7)
- b) Differentiate load-bearing and framed construction structural systems. Discuss the advantages and disadvantages of each. (7)

MODULE III

15. a) Provide a basic understanding of prestressing in construction and differentiate between pre-tensioned and post-tensioned construction. (7)
- b) Describe the uses of scaffolding in construction. Provide a brief overview of the classification of scaffolding types and their specific applications. (7)

OR

16. a) Explain the concept of cost-effective construction. How do techniques like rapid wall construction, voided slab technology, and filler slab technology contribute to cost-effectiveness in construction? (14)

MODULE IV

17. a) Explain the different types of tenders commonly used in construction, and provide examples of when each type is appropriate. (14)

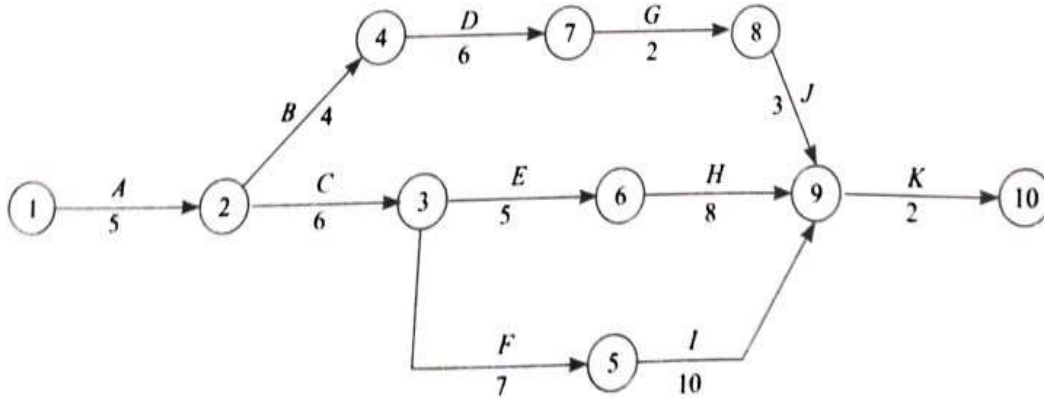
OR

18. a) Compare and contrast lump-sum and percentage rate contracts, and explain the circumstances in which each contract type is typically preferred. (7)
- b) Define concession contracts and BOT (Build-Operate-Transfer) contracts in construction. Discuss the primary objectives and features of these contract types. (7)

MODULE V

19. The following network shows the activities, durations and their sequence of operation for a construction project.

- i) Prepare the **AON** network and compute their Early start, Early finish, Late start and late finish times.
- ii) Determine the critical path and find the total float for each activity.

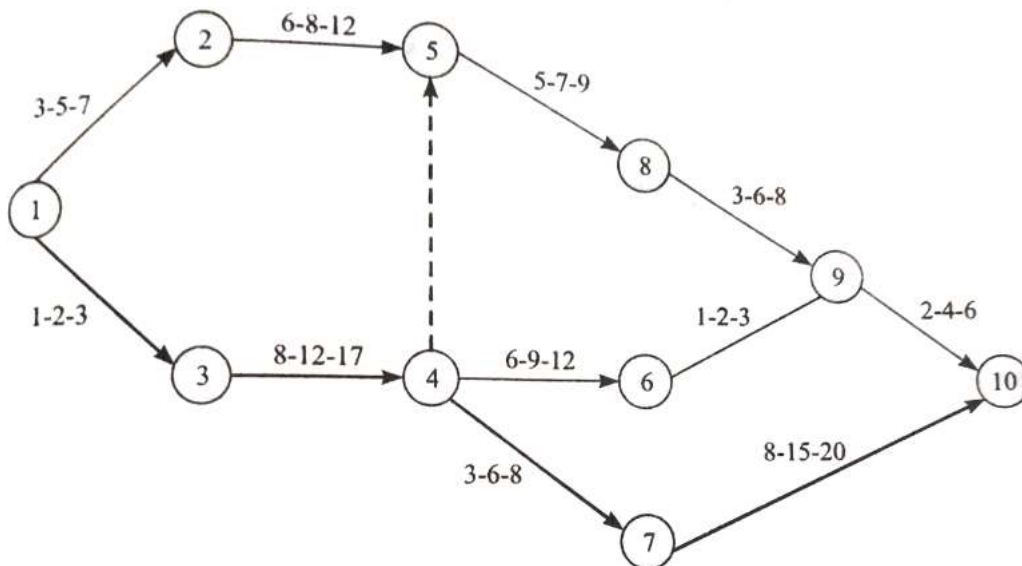


(14)

OR

20. For the network shown below

- i) Determine the critical path
- ii) What is the probability of completing the project within 36 days?



(14)
