

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2022 (2019 Scheme)

**Course Code: CET 309****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)*

Marks

- | | | |
|----|---|---|
| 1 | Name the Bogue's compounds in cement. What is their significance in cement hydration process? | 3 |
| 2 | Explain particle boards and its advantages. | 3 |
| 3 | What is curing? Name 4 methods of curing. | 3 |
| 4 | Explain the need for lintels. Name the types of lintels. | 3 |
| 5 | Describe slipform construction technology. | 3 |
| 6 | Discuss any three types of scaffolding. | 3 |
| 7 | List the details provided in a Notice Inviting Tender. | 3 |
| 8 | What is EMD and what is its purpose in tendering? | 3 |
| 9 | Differentiate between CPM and PERT. | 3 |
| 10 | Define Total Float, Free Float and Independent Float. | 3 |

PART B*(Answer one full question from each module, each question carries 14 marks)***Module -1**

- | | | |
|----|---|---|
| 11 | a) Explain the tests for specific gravity and soundness of cement. | 8 |
| | b) Discuss any three types of chemical admixtures. | 6 |
| 12 | a) Explain gap graded, poorly graded and well graded aggregates. Draw their well-marked gradation curves. Discuss the importance of well graded aggregates. | 9 |
| | b) Write a short note on the quality of water used in concrete construction. | 5 |

Module -2

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|----|--|----|
| 13 | Discuss any seven types of arches with figures. | 14 |
| 14 | a) Explain any five stages in the manufacture of concrete. | 10 |

- b) Explain the slump test. Mention the types of slumps in which slump test result is invalid and is to be repeated. 4

Module -3

- 15 a) Discuss the advantages and disadvantages of prefabricated construction. 8
 b) Explain filler slab technology and its benefits. 6
 16 a) Explain the concept of prestressing. Discuss the two types of prestressing. 8
 b) What are the benefits of 3D construction printing? 6

Module -4

- 17 Explain the tendering process in detail. 14
 18 a) Explain the advantages and disadvantages of lumpsum contracts and item rate contracts. 8
 b) Explain the pre project phase of a construction project. 6

Module -5

- 19 Draw the AON network of the following activities. Find the critical path. Calculate the Total Float, Free Float, Independent Float for each activity. 14

Activity	A	B	C	D	E	F	G	H	I
Predecessor	-	A	A	B	B	C	C	E, F	D, H, G
Duration (months)	3	4	2	6	3	4	5	4	2

- 20 Details of the activities of a project are as follows: 14

Activity	A	B	C	D	E	F	G	H	I	J
Predecessor		A	A	A	B	B, C	D	F, G	E	H, I
Optimistic Time (days)	2	6	8	9	9	5	14	8	14	6
Most Likely Time (days)	4	11	10	11	11	7	18	12	17	9
Pessimistic Time (days)	6	16	12	13	13	9	22	16	20	12

- (i) Draw the AON network and find the project completion time with 50% probability.
 (ii) Find the probability of completion in 50 days.
 (iii) What is the project completion time with a probability of 75% being met?
