

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3170614

Date:24-11-2025

Subject Name:Construction Engineering and Management

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

Q.1 (a) Prepare a Work Breakdown Structure for a primary school construction. **03**
(b) Draw a bar chart for a below-given project. Also determine total project duration. **04**

Activity	A	B	C	D
Preceding Activity	-	A	A	C
Duration (Days)	2	4	5	4

(c) Draw A-O-A network for the below-given project by CPM. **07**

Activity	A	B	C	D	E	F	G	H	I
Preceding Activity	-	A	A	B	C	E	D, F	E	G, H

Q.2 (a) Differentiate between wheeled mount tractor and crawler mount tractor. **03**
(b) Draw a job layout for commercial complex building construction. **04**
(c) Define the terms: Earliest starting time, Latest starting time, Earliest finishing time, Latest finishing time, Optimistic time, Most likely time, and Pessimistic time. **07**

OR

(c) How to calculate the cycle time of a truck and truck production? **07**

Q.3 (a) Write advantages and disadvantages of line and staff organization. **03**
(b) Differentiate between activity and event. **04**
(c) Draw a network for the below-given project by CPM. Also determine critical activities, critical path, and total project duration. **07**

Activity	A	B	C	D
Preceding Activity	-	-	A	B
Duration (Days)	2	4	5	4

OR

Q.3 (a) Define with the equation: Mean, Deviation, and Standard deviation. **03**
(b) Represent a Node of a Precedence Network. **04**
(c) Discuss various rules for network drawing. **07**

Q.4 (a) Why is construction management required in Indian construction industry? **03**
(b) From a drawn cash flow diagram what information can you get? **04**
(c) Explain the steps of cost optimization through the CPM network. **07**

OR

Q.4 (a) What is network updating? Why is it important for ongoing project? **03**
(b) Explain economic order quantity in detail. **04**

(c) Explain the step-by-step process of resource smoothening and resource levelling. **07**

Q.5 (a) Prepare a list of various effects of accidents. **03**
(b) Explain various safety equipment used on construction site. **04**
(c) Explain principles of inspection for quality control. **07**

OR

Q.5 (a) Write a short note on Tunnel Boring Machines. **03**
(b) Differentiate between a Reciprocating pump and Centrifugal pump. **04**
(c) Draw a neat sketch of truck mounted mobile crane and fixed mast tower crane with all components. **07**
