

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VIII EXAMINATION-SUMMER 2023****Subject Code: 2180611****Date: 15/06/2023****Subject Name: Construction Management****Time: 02:30 PM TO 05:00 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.
5. Draw neat and clean fig / sketch wherever necessary.

- Q.1** (a) Define Activity and Event with example. **03**
 (b) Explain with diagram different types of events. **04**
 (c) A list of activities for a construction work is given in table. **07**
 Draw network diagram. Find EST, EFT, LST, LFT for the activities. Also show critical path and calculate all floats.

Activity	Duration (days)
1 – 2	5
2 – 3	10
2 – 4	8
3 – 4	0
3 – 5	5
4 – 5	9
4 – 6	6
5 – 6	4

- Q.2** (a) Define : (i) Earliest Start Time (EST) (ii) Free Float **03**
 (iii) Total float
 (b) What is bar chart? Explain with the help of suitable example **04**
 the method of preparing bar chart.
 (c) An equipment is required to be procured for a job. Two brands **07**
 A and B are available to perform the task. Brand A requires an investment of Rs. 6.0 lacs, while brand B needs an investment of Rs. 9.0 lacs. The annual saving generated by brand A and B are as shown in table. Which brand of equipment is to be purchased if rate of interest is 8%.

Equipment	Year wise saving details (in lacs)		
	1	2	3
Brand-A	3.5	3.5	3.5
Brand-B	4.5	4.5	4.5

OR

- (c) Time estimates for different activities of a project are shown in **07**
 table. Draw network diagram and calculate the expected time for each path and show the critical path.

Activity Time	1-2	1-3	2-3	2-4	3-5	3-6	4-5	5-6	6-7
t_o	6	5	3	4	1	3	0	2	3
t_m	10	7	5	7	2	6	0	10	5
t_p	14	15	7	16	3	15	0	15	12

- Q.3** (a) Write detail note about “Critical Path Method” **03**
 (b) What is WBS? How is it helpful in planning, monitoring and controlling the project? **04**
 (c) Draw the AOA diagram for a project activities and determine (i) critical path (ii) project duration and (iii) calculate all floats. **07**

Activity	1 – 2	2 – 3	2 – 4	3 – 4	3 – 5	4 – 5
Duration (days)	8	12	4	6	10	6

OR

- Q.3** (a) What is construction company? **03**
 (b) Write the traits of a project manager. **04**
 (c) What are the different forms of business organization? Discuss in brief. **07**

- Q.4** (a) What is crashing of an activity? How is it used for optimizing project cost? **03**
 (b) List the different types of schedules and explain staff and material scheduling. **04**
 (c) Write the steps involved in optimization of cost. **07**

OR

- Q.4** (a) What is updating? When is it required? **03**
 (b) Write the purposes of scheduling. **04**
 (c) Find the optimum duration and cost after crashing for the following data of project activities. **07**

Activity	Normal		Crash	
	Time (week)	Cost (Rs)	Time (week)	Cost (Rs)
1 – 2	5	4000	4	7000
2 – 3	7	3000	4	6000
2 – 4	8	3000	5	7000
3 – 4	6	4000	5	9000

- Q.5** (a) What is total quality management? **03**
 (b) Write the sources of working capital for a project. **04**
 (c) A machine was purchased for Rs. 5.0 lacs on January-2001. The erection and commissioning cost were Rs. 50000. The machine was replaced by new advanced technology machine on 31st December – 2010. The scrap value of old machine was Rs.60000. Calculate its depreciation cost. **07**

OR

- Q.5** (a) Define (i) Assets (ii) Liability and (iii) Balance sheet **03**
 (b) What is job layout? State factors affecting job layout. **04**
 (c) Write about various safety codes to be used to reduce accidents at construction site. **07**
