

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019****Subject Code: 2180611****Date: 21/11/2019****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.

MARKS

- Q.1** (a) Distinguish between CPM and PERT. **03**
- (b) Define “project” and state different phases through which a construction project passes. **04**
- (c) A contractor has been awarded a job that requires procurement of an equipment. Two brands “A” and “B” are available to perform the job. Brand “A” requires an investment of Rs. 5.00 lakhs, while brand “B” requires an investment of Rs.8.00 lakhs. The annual saving generated by brands A and B are given in table. Which brand of equipment should the contractor choose if rate of interest is 8% ? **07**

Equipment	Year wise saving details (Rs. In Lakh)		
	1	2	3
Brand – A	3.00	3.00	3.00
Brand – B	3.60	3.60	3.60

- Q.2** (a) What you mean by a “construction company”? Distinguish between authority, responsibility and accountability. **03**
- (b) Write short note on “Effect of inflation on cash flow”. **04**
- (c) What are the traits of a project manager? Explain in detail. **07**

OR

- (c) Discuss in brief about different forms of business organization. **07**
- Q.3** (a) Define (i) Event (ii) Activity (iii) Network **03**
- (b) What is WBS? How is it helpful in planning, monitoring and controlling the projects? **04**
- (c) Find the expected time for completion of project for the activities tabled below. Draw the network diagram. **07**

Activity	Estimated activity duration		
	T_o	T_m	T_p
(1, 2)	3	6	16
(1, 6)	2	5	14
(2, 3)	6	12	30
(2, 4)	2	5	8
(3, 5)	5	11	16
(4, 5)	3	6	15
(6, 7)	3	9	24
(5, 8)	1	4	7
(7, 8)	4	19	28

OR

- Q.3 (a)** What do you understand by “ crashing of an activity”? How is it used for optimizing project cost? Explain with help of diagram. **03**
- (b)** Enlist different types of schedules and explain staff and material scheduling. **04**
- (c)** The following data shows time duration and activities of the project. The project overhead costs are Rs.2000/week. Calculate the optimum duration and cost associated with it. **07**

Activity	Duration (in week)		Cost (Rs.)	
	Normal	Crash	Normal	Crash
1 - 2	5	2	5000	10000
2 - 3	6	3	3000	7000
2 - 4	7	5	4000	6000
3 - 4	5	3	3500	9000

- Q.4 (a)** What is meant by assets and liabilities? Give examples of assets and liabilities in context of construction organization. **03**
- (b)** What are the different functions of material management? **04**
- (c)** What is inventory? Write note on inventory and inventory related cost. **07**

OR

- Q.4 (a)** How do you define quality in construction? Discuss the concept of “quality” for construction industry. **03**
- (b)** What do you mean by total quality management (TQM)? **04**
- (c)** Explain the role and responsibilities of safety officer deputed at construction site. **07**

- Q.5 (a)** Write assumptions need to be followed prior to formulating model. **03**
- (b)** Write traditional parameters on which project performance is measured. **04**
- (c)** Company manufacturing windows and doors has three plants. Plant -1 making aluminum frame, plant-2 making wooden frame and plant -3 making assembly. Product A- Aluminum frame door with glass and product B- wooden **07**

frame glass window. Determine how many units of A and B should be produced to generate maximum profit? The plant capacity available and utilized is given below.

Plant	% plant capacity used		% plant capacity available
	A	B	
1	1	0	4
2	0	1	12
3	3	2	18
Unit profit	3	5	

OR

- Q.5** (a) Write criteria for project evaluation. **03**
 (b) Explain effect of various elements on project performance. **04**
 (c) A construction project consists of 11 activities. The predecessor relationship is shown by their node numbers in the table. Draw network diagram and critical path of project. **07**

Activity	Identity	Duration (week)
A	(1, 2)	3
B	(2, 4)	4
C	(2, 3)	5
D	(2, 7)	3
E	(3, 4)	2
F	(3, 5)	5
G	(4, 6)	4
H	(5, 6)	3
I	(5, 7)	5
J	(7, 8)	6
K	(6, 8)	5
