

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014****Subject Code: 170601****Date: 22-05-2014****Subject Name: Construction Management and Equipments****Time: 02:30 pm - 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. Draw sketch / fig. where ever necessary.

- Q.1** (a) Explain the necessity of construction management in detail. **07**
 (b) What is work break down structure in construction project? Draw work break down structure of a residential building project. **07**

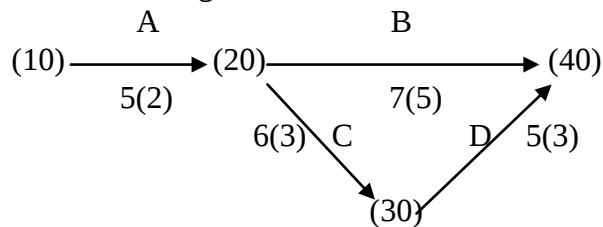
- Q.2** (a) What is bar chart ? Explain with the help of suitable example the method of preparing a bar chart. **07**
 (b) Explain the “Life cycle curve” of a project. A pipe line laying project needs 30 days to complete. The progress of work is shown as under. Draw the life cycle curve. **07**

Sr. No.	Description	Time in days	% of progress
1	Survey work for pipe line	4	2
2	Preparation of specifications	5	6
3	Alignment fixing	9	15
4	Tendering work for pipe line	12	24
5	Tender notice issue	15	40
6	Tender finalization	18	50
7	Material supply completed	22	70
8	Pipe laying completed	26	85
9	Backfilling the trench completed	28	95
10	Clearing of site	30	100

OR

- (b) What is belt conveyor? Write advantages of belt conveyor. **07**

- Q.3 (a)** The following data shows duration and cost of various activities of the network shown in the fig. **07**



Activity	Normal duration (week)	Normal cost (Rs.)	Crash duration (week)	Crash cost (Rs.)
10 – 20	5	5000	3	10000
20 – 30	6	3000	3	7000
20 – 40	7	4000	5	6000
30 – 40	5	3500	3	9000

The project overhead costs are Rs. 2000/week. Calculate the optimum duration and cost associated with it.

- (b)** Explain the method of updating a network during its execution period. **07**

OR

- Q.3 (a)** Give classification of schedules and explain each of them in detail. **07**
(b) Define (i) PERT (ii) Optimistic time (iii) Pessimistic time (iv) Most likely time (v) free float. **07**

- Q.4 (a)** For an activity the optimistic time, pessimistic time and most likely time estimates are 6, 16, and 10 days respectively. Calculate the Expected time, standard deviation and variance of activity **07**
(b) State difference between CPM and PERT **07**

OR

- Q.4 (a)** How the “ S “ curve is used to analyse the cash requirements of a project? **07**
(b) Estimate the book value of equipment at the end of each year of ownership from following data. **07**

Initial book value Rs. 30,00,000/-

Ownership period = 6 years

Salvage value = 3,00,000

Interest rate I = 13 %

Use method of sinking fund method of depreciation for calculation.

- Q.5 (a)** Write the use of present worth analysis in engineering economic studies. **07**
(b) Calculate the probable cost/hour for owning and operating a power shovel for following conditions. **07**

1. Engine - 200 HP
2. Crankcase capacity – 30 lit.
3. Time between oil change – 120 Hours
4. Operating factor – 0.6
5. Useful life of shovel – 5 years
6. Hours used/ year – 1600 Hours
7. Total initial cost – 3,00,000 Rs.
8. Estimated salvage value – 30,000 Rs.
9. Maintenance & repair – 70 % of annual depreciation cost.

OR

- Q.5 (a)** Explain in detail various reasons for replacement of construction equipment. **07**
(b) Write short notes on (i) Crawler tractor (ii) Wheel tractor. **07**
