

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. VIIth Semester–Examination – Nov- 2011****Subject code: 170601****Subject Name: Construction Management & Equipments****Date: 19/11/2011****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions & Draw neat sketch wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe in detail various phases of Project Management. **07**
 (b) What is a Gantt bar chart? Explain, with the help of a suitable example, the method of preparing a bar chart. **07**
- Q.2** (a) The following network shown in figure 1 has the estimated duration for each activity marked. Determine the critical path. also determine total float and free float for each activity. **07**

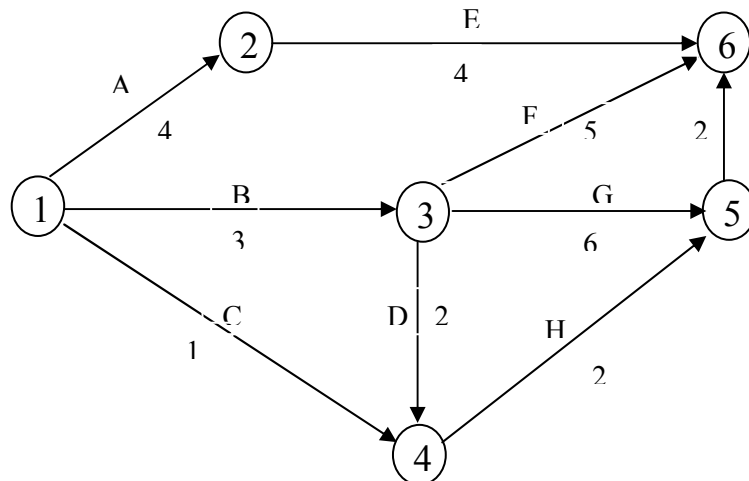


Figure 1

- (b) Explain in detail Resources Smoothing method of Resources allocation problems. **07**
- OR**
- (b) Illustrate the method of updating a network during its execution period. **07**
- Q.3** (a) The following table gives the data about durations and costs of various activities of the network shown in fig.2 **07**

Activity	Normal Duration (weeks)	Normal cost (Rs.)	Crash Duration (weeks)	Crash cost (Rs.)
1-2	4	4000	2	12000
2-3	5	3000	2	7500
2-4	7	3600	5	6000
3-4	4	5000	2	10000

The project overhead costs are Rs. 3000 per week. Find the optimum duration and the cost associated with it.

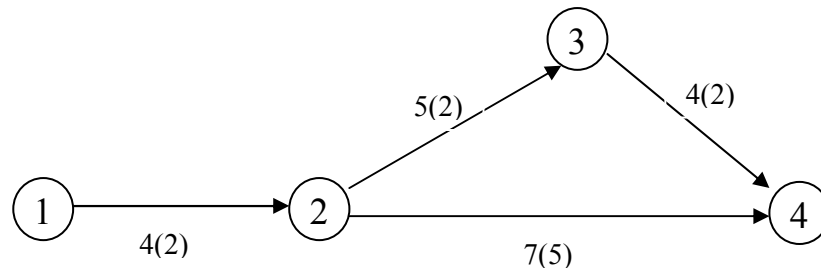


Figure 2

- (b) Explain in detail various factors affecting the selection of construction equipments. **07**

OR

- Q.3** (a) What do you understand by Job layout? What are the factors affected the job lay out? **07**
- (b) Explain in detail various financial aspects of procuring construction equipments. **07**

- Q.4** (a) Determine the probable cost/ hour for owning and operating of a power shovel for following conditions. **07**

Engine	180 HP
Crankcase capacity	30 Lit.
Time between oil changes	100 Hours
Operating factor	0.5
Useful life	5 Years
Hours used/ Year	1500 Hours
Total Initial cost	250000
Estimated salvage value	20000
Maintenance & Repair	75 % of annual depreciation

- (b) What is the use of Present worth analysis in engineering economic studies? **07**

OR

- Q.4** (a) Discuss in details various reasons for replacement of construction equipment. **07**
- (b) Explain in brief the following soil fundamentals. **07**
1. Materials properties
 2. Soil weight – volume relationships

- Q.5** (a) Write short notes on following. **07**
1. Crawler tractor
 2. Wheel tractor

- (b) What are the uses of power shovels? Describe with neat sketch basic parts and operation of power shovel. **07**

OR

- Q.5** (a) Write short notes on following. **07**
1. Conveyor belt
 2. Idlers

- (b) Write short notes on following. **07**
1. Dumper
 2. Wagons
