Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: VIII Civil Engineering

Regular Examination May – June 2013

C-802 Construction Management

Time: 3 Hours **Total Marks: 70**

Instruction:

1. **Attempt all question.**
2. **Make suitable assumption wherever necessary.**
3. **Figures to the right indicate full marks.**

Section – I

Que. – 1 **(a)** Explain the six major functions of construction management. 4

(b) Prepare a bar chart for overhead RCC water tank. 6

Activity	Duration
A. Site cleaning	1
B. Setting out of work	1
C. Excavation	1.5
D. PCC	1.0
E. Raft footing	2
F. RCC wall	6
G. Back filling	1
H. Bottom slab	3
I. RCC wall for tank	4
J. Pumping station	4
K. Top Dome slab	2
L. Plumbing	3
M. Water proofing	2
N. Staircase	3
O. Painting	2

(c) Define Dummy and state its uses. 2

OR

Que. – 1 **(a)** Write short note on project life cycle. 4

(b) Discuss various network rules. 4

(c) Differentiate Activity Oriented Network and Event Oriented Network. 4

Que. – 2 **(a)** **Define following terms:-** 5

(i) Optimistic time,(ii) Pessimistic time, (iii) Most likely time,
(iv) Earliest expected time, (v) Slack

(b) Following activities are observed in a project. Prepare network diagram and find out (1) Critical path (2) Critical activities (3) Project duration and (4) prepare schedule for network including activity times and floats. 6

Activity	Sequence Code	Duration (in Days)
A	1-2	5
B	2-3	9
C	2-4	3
D	3-6	2
E	4-5	4
DUMMY	3-5	0
F	5-7	7
G	6-7	3
H	7-8	9

OR

Que. – 2 (a) Following activities are observed in a project. Prepare network diagram and find out (1) Critical path (2) Critical activities (3) Project duration and (4) prepare schedule for network including activity times and floats. 6

Activity	Preceding Activity	Following activity	Duration(days)
P	-	S	2
Q	-	T	4
R	-	U,W	3
S	P	V	5
T	Q,U	V	8
U	R	T,X	3
V	S,T,X	-	6
W	R	Z	3
X	Q,U	V,Y	5
Y	X	-	4
Z	W	-	9

(b) Explain Fulkerson's rules for numbering the events. 5

Que. – 3 (a) Write short note on ABC analysis. 4

(b) Prepare job layout for a multistory building. 4

(c) Enlist participants involved in construction project and State their roles in project. 4

Section – II

Que. – 4 (a) Write short note on Cash Flow Analysis and use of 'S' Curve. 4

(b) From the following data for a power shovel, find out hourly rental cost for hiring it out to others: 5

Prime Cost..... = Rs. 12,50,000/-
Estimated useful life..... = 6 years
Salvage Value..... = 10% of Prime cost
Investment Cost..... = 15% of average value
Maintenance & Repair cost = 30% of annual depreciation
Annual overhead..... = Rs. 10,500/-
No. of hours per day..... = 18 hours
Operating factor..... = 0.60
Daily operating cost..... = Rs. 2200/-
Expected Profit..... = 10% of Owning and operating cost.
Use straight line method of depreciation.

(c) Write short note on Resources Allocation. 3

OR

Que. – 4 (a) The original cost of a roller is Rs. 8,00,000/- and its salvage value is 10% Of its original cost. The roller is used for 1500 hours per year and its life Is 5 years. The hiring charges for the same type of roller including maintenance and repair is Rs. 30000/- per month. Suggest whether the roller should be purchased or hired. 5

(b) Explain stages of material management. 4

(c) Define following terms:- (i) Mean (ii) Variance (iii) Standard deviation. 3

Que. – 5 (a) Following Activities are observed in a project. Prepare network diagram and find out (1) Critical path and its standard deviation (2) Probability of completion of project in 30 days (3) Time duration that will provide 90% probability of its completion in time (4) Prepare schedule for PERT. 6

Activity	Preceding Activity	Duration(days)		
		T_o	T_m	T_p
P	1 - 2	5	7	8
Q	2 - 3	5	6	6
R	2 - 4	3	5	7
S	3 - 5	6	6	9
Dummy	3 - 4	0	0	0
T	4 - 6	7	9	12
U	5 - 7	2	4	5
V	6 - 7	2	2	4
W	7 - 8	2	3	4

(b) A construction equipment was purchased in Rs. 15000/-. Assuming its salvage value at the end of 5 years to be Rs. 1500/-, determine the amount of depreciation for each year by sinking fund method considering rate of interest at 4% per annum. 5

OR

Que. – 5 (a) Following Table gives data for the duration and costs of each activity of the project. The indirect cost of the project is 2500/- per week. Determine the optimum duration of the project and the corresponding minimum cost. Draw time scaled network and cost-duration curve for the project. 6

Activity	Sequence Code	Normal Duration (weeks)	Normal Cost (Rs.)	Crash Duration (weeks)	Crash Cost (Rs.)
P	1-2	6	7000	3	14500
Q	1-3	8	4000	5	8500
R	2-3	4	6000	1	9000
S	2-4	5	8000	3	15000
T	3-4	5	5000	3	11000

(b) Compare standard equipments and special equipments. 5

Que. – 6 (a) Write Short note on Resources Scheduling. 4

(b) Write short note on Appraisal of Project. 4

(c) Explain factors affecting selection of equipments. 4

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