

GANPAT UNIVERSITY**B. Tech. Semester: VIII Civil Engineering****Regular Examination April – June 2015****2CI802 Construction Management**

Time: 3 Hours

Total Marks: 70

- Instruction:**
- 1 Attempt all questions.
 - 2 Make suitable assumptions wherever necessary.
 - 3 Figures to the right indicate full marks.

Section - I

- Que. – 1**
- (A) Define: Total Float, Activity, Event, Dummy Activity and Free float. **5**
- (B) Write short note on Work Breakdown Structure. Explain types of Events with examples. **7**

OR

- Que. – 1** (A) Prepare a bar chart for construction of RCC column beam frame for industrial structure starting from plinth level up to striping of framework of beam. **5**

Activity	Duration
A. Column reinforcement cutting & bending	3
B. Placing of reinforcement of column	3
C. Formwork of column	1
D. Concreting of column	2
E. Striping of column formwork	1
F. Beam formwork placing	2
G. Beam reinforcement cutting & bending	3
H. Beam reinforcement placing	2
I. Casting of Beam	1
J. Removal of formwork of beam side	2

- (B) Discuss various rules for preparing CPM network. **7**
- Que. – 2** (A) Differentiate Activity Oriented Network and Event Oriented Network. **4**
- (B) Following activities are observed in a project. Prepare network diagram and find out (1) Critical path (2) Critical activities (3) Project duration. **7**

Activity	Preceding Activity	Following activity	Duration (days)
A	-	B,C	8
B	A	D,F	4
C	A	E	8
D	B	E	0
E	C,D	G	16
F	B	H	8
G	E	I	14
H	F	I	4
I	H,G	-	4

Que. - 2 (A) Define following terms:-

- (i) Optimistic time (ii) Pessimistic time (iii) Most likely time (v) Slack

(B) 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 15 days (3) Time duration that will provide 90% probability of its completion in time (4) Prepare schedule for PERT.

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

Que. - 3 (A) For the given data provided for a project, draw the network and carry out resource leveling based on all activities starting as early as possible. Find out total float associated with the activities. Following Activities are observed in a project. The data regarding the requirements of masons per day are given in table.

Carryout resources allocation for the project and arrange the network in such a manner that requirement of masons are almost uniform throughout project without delaying the project assuming that unlimited number of masons available. Draw histogram for requirement of masons for original and revised schedule.

Activity	Sequence Code	Duration (in days)	Required No. of masons
P	1 - 2	3	5
Q	2 - 3	3	3
R	2 - 4	5	4
S	3 - 5	3	4
T	4 - 6	3	6
U	5 - 7	2	4
V	6 - 7	5	3
W	7 - 8	2	6

- (B) Following activities are observed in a project. Prepare network diagram and find out (1) Critical path (2) Critical activities (3) Project duration.

6

Activity	Sequence Code	Duration (in days)
P	1 - 2	7
Q	2 - 3	6
R	2 - 4	5
S	3 - 5	6
Dummy	3 - 4	0
T	4 - 6	9
U	5 - 7	4
V	6 - 7	2
W	7 - 8	3

Further the network is to be updated after 7 days of its execution. Following conditions exist at the end of 7 days:

- (i) Activity P is completed as per schedule.
- (ii) Activity Q was executed more rapidly than originally scheduled, and it took 5 days for its completion.
- (iii) Start of Activity R was delayed drastically and can be started after 3 days of completion of activity P but will require 4 more days instead of 5 days.
- (iv) Activity S is not started yet and will require 12 days instead of 6 days and can be started immediately after completion of Q.
- (v) Activity T is as per schedule.
- (vi) Activity U is not started yet and will require 7 days instead of 4 days.
- (vii) All other activities are unchanged and the original time estimates for these activities still appeared to be accurate.

Update the network, determine the revised critical path and calculate revised T_E and T_L for all events.

Section – II

Que. – 4 (A) Explain various categories of construction project. How management of construction projects differ from management of industrial enterprise? Explain briefly. 7

(B) Write short note on project life cycle. 5

OR

Que. – 4 (A) Enlist participants involved in construction project and State their roles in construction project. 7

(B) What is project management? State importance of project management. 5

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 2100/- 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. 7

Activity	Sequence Code	Normal Duration (weeks)	Normal Cost (Rs.)	Crash Duration (weeks)	Crash Cost (Rs.)
P	1-2	6	6000	2	13500
Q	1-3	8	4500	5	8000
R	2-3	3	5000	1	9200
S	2-4	5	7000	3	14500
T	3-4	5	5500	2	12000

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

OR

Que. – 5 (A) Write short note on Cash Flow Analysis and use of 'S' Curve. 7

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

Que. – 6 (A) Explain factors affecting selection of equipment's. 4

(B) Prepare week wise Labour schedule and Equipment Schedule for a small project. 4

(C) Write down name of the software's related to project management. Explain any one. 4

END OF PAPER