Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: VIII Civil Engineering

Regular Examination April – June 2017

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) Prepare a bar chart for 2BHK residential house. List out activates and appropriate duration as per construction procedure. Starting date of the project is 1st February 2017 and every Sunday is holiday. **7**

(B) Write shortcoming of bar charts and remedial measures. **5**

OR

Que. – 1 (A) Write short note on work breakdown structure with suitable example. **7**

(B) Differentiate activity oriented network and event oriented network. **5**

Que. – 2 (A) Discuss three time estimate in detail with graphical representation. **5**

(B) Explain: **6**
(a) Mean (b) Variance (c) Standard deviation (d) Slack
(e) Earliest expected time (f) Latest allowable occurrence time

OR

Que. – 2 (A) Following Activities are observed in a project. Prepare network diagram and find out **8**

(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

Values of Z: 0.1-54%, 0.2-57.9%, 0.3-61.8%, 0.4-65.5%, 1.2-88.5%, 1.3-90.3%

(B) A father notes that when his teenage daughter uses the telephone, she takes not less than 6 minutes for a call .Times as much as an hour. Fifteen minutes calls are more frequent than calls of any other duration. If these phone calls were an activity in PERT project, then find the phone calls expected duration.

Que. – 3 **(A)** Explain activity times with their equations. **4**

(B) Following activities are observed in a project. Prepare network diagram and find out **8**

(1) Critical path
(2) Critical activities
(3) Project duration and
(4) Prepare schedule for network including activity times and floats.

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

Section – II

Que. – 4 **(A)** Explain Direct and Indirect cost in detail. Also draw sketch of total cost. **6**

(B) Enlist participants involved in construction project. State their roles in construction project. **6**

OR

Que. – 4 **(A)** Write classification of construction projects. **6**

(B) What is Updating? Why we are doing updating for the project? Is updating it fruitful for the project? **6**

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 Rs. 75/- per day. Determine the optimum duration of the project and the corresponding minimum cost. **8**

Activity	Sequence Code	Normal Duration (Days)	Normal Cost (Rs.)	Crash Duration (Days)	Crash Cost (Rs.)
A	1-2	2	1000	2	1000
B	1-3	7	500	3	900
C	2-3	6	300	3	420
D	2-4	5	200	4	250
E	3-4	0	0	0	0
F	3-5	9	600	4	900
G	4-6	11	600	6	1000
H	5-6	6	700	3	910

Note: - Use graph paper for time grid diagram

(B) Discuss the role of construction manager. **3**

OR

Que. – 5 **(A)** Following activities are observed in a project. Prepare network diagram and find out **7**
(1) Critical path (2) Critical activities (3) Project duration.

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.

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 TE and TL for all events.

(B) What is Project Appraisal? Describe the different aspects of project appraisal. **4**

Que. – 6 (A) 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. **8**

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) Explain resource allocation and smoothing. **4**

END OF PAPER