(CBSGS)

(3 HOURS)   [Total Marks: 80]

N.B: 1) Question No:1 is compulsory.

2) Attempt any three questions out of remaining five questions.

3) Figures to the right indicates full marks

Q 1.   Write short notes on any four of the following
        a. Work breakdown Structure
        b. Types of construction Projects
        c. Causes of accidents
        d. Quality Assurance
        e. Function of Material Management

Q 2.a   Explain the 14 principles of management.   10

b   Following table shows the activities, their interdependence and the duration.   10

Activity	A	B	C	D	E	F	G	H	K	L	M
Preceding activity	–	–	–	A	B	B	C	C	F,G	G	H,K,L
Duration (days)	3	3	3	18	4	15	8	11	7	5	7

    a) Draw a A-O-A network
    b) Work out all activity times and floats
    c) Identify the critical path and the project duration

3.a   Explain in brief the phases in the life cycle of a construction project.   10

b   For a small project, prepare a resource histogram based on EST and LST   10
schedule. Comment on the suitability of distribution on above methods.

Activity	A	B	C	D	E	F	G
Preceding activity	–	–	–	A	B	C	E
Duration (days)	4	5	3	4	5	3	7
Masons required	3	4	4	3	2	4	8

Smoothen the resources depending upon the peak demands.

4.a   Find out the optimum cost and optimum duration for this project. The indirect   12
cost of the project is Rs. 3000/week

Activity	Immediate predecessor	Normal duration (weeks)	Normal Cost (Rs)	Crash duration (weeks)	Crash cost (Rs)
A	-	3	3000	1	4500
B	A	2	5000	1	8000
C	B	4	2000	2	4000
D	B	3	7000	1	10,000
E	B	2	12,500	2	12,500
F	C	3	10,000	1	13,000
G	D, E	5	6500	3	9000
H	F	4	4300	2	8000

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b   What are the time overruns and cost overruns of a project? What are the
    methods to avoid them?   8

5.a   The activity details of a small network is shown in the table below: 10

Activity	1-2	1-3	1-4	2-5	3-6	4-5	4-6	4-7	5-7	6-7
Time required	6	7	4	Dummy activity	4	12	10	8	5	6

The following conditions exist at the end of 10 days:
- i)   Activity 1-2 ,1-3 and 1-4 have been completed as originally scheduled.
- ii)   Activity 4-5 is in progress and will require 6 more days for its completion.
- iii)   Activity 4-6 is in progress and still require 6 more days for its completion
- iv)   Activity 3-6 is in progress and will be completed in one day.
- v)   Other activities have not been commenced and their original predicted duration will hold good, except for activity 5-7 which will require only three days instead of 5 days originally planned.

Update the network and determine the critical path of the updated network.
What is the total increase in the project duration?

b   Write short notes on: 10
- i)   Statistical Quality Control
- ii)   Resource Levelling
- iii)   Cost Slope

6.a   A small project is composed of seven activities as given below: 10

Activity		Estimated duration (weeks)		
i	j	t_0	t_m	t_p
1	2	2	3	5
1	3	4	9	14
1	4	2	8	12
2	5	1	1	1
3	5	2	5	14
4	6	2	8	10
5	6	3	9	15

- i)   Draw project network
- ii)   Find expected duration, standard deviation and variance of all activities.
- iii)   Calculate the variance of the project duration.
- iv)   What is the probability that the project will be completed 3 weeks earlier than the expected date?

b.   Write short notes on **any four** of the following: 10
- i)   Beta distribution curve
- ii)   ISO 14000
- iii)   OSHA
- iv)   Requirements for preparation of a site layout
- v)   Sources of funds for starting a project.