Q. P. Code: 21385

(Time: 3 Hours) **[Total marks : 80]**

NOTE:.

- Question No. 1 is compulsory.
- Attempt any THREE out of the remaining five questions.
- Figure to the right indicates full marks
- Assume any suitable data and clearly state the same.

Q.1a) Following table shows the activities, their interdependence and the durations. 10

Activity	A	B	C	D	E	F	G	H
Preceding activity	--	A	A	B	B	C,E	D,F	C,E
Duration (days)	5	7	9	4	6	7	5	4

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

b) Define, Construction Management & explain all functions of Construction Management. 10

Q.2a) A small project is composed of seven activities as given below: 12

Activity	A	B	C	D	E	F	G
Preceding Activity	----	----	A	A.B	C,D	E	C.D
to(days)	2	3	5	4	5	2	3
tm(days)	4	5	7	7	9	4	6
tp(days)	6	7	9	10	14	6	9

Z	-3.0	-2.0	-1.0	0	+1.0	+2.0	+3.0
P (%)	0.13	2.28	15.87	50	84.13	97.72	99.87

i) Draw project network
ii) Find expected duration, standard deviation and variance of all activities.
iii) Calculate the project duration corresponding to 75% probability?
iv) What is the probability that the project will be completed 3 weeks earlier than the expected date?

b) Explain the time estimates considered in PERT analysis? 08

Q.3a) The following table shows the details of activities of a small project. 10
Calculate the optimum project cost & project duration. Indirect cost = Rs. 1500 / per day.

Activity	Predecessor	Normal		Crash	
		Time (days)	Cost (Rs).	Time (days)	. Cost (Rs).
A	-----	9	8000	6	9500
B	------	5	5000	3	5500
C	B	7	6500	4	10500
D	A	6	7000	4	10000
E	A	5	4500	3	7500
F	D	9	5500	5	9000

b) Explain i) Quality control with its importance in construction projects. 05
ii) A-B-C analysis 05

Q.4a) Table below shows activities, their durations and labour requirements:

Activity	Duration	Labours
A(10-20)	4	3
B(10-30)	5	4
C(20-50)	7	2
D(30-40)	5	5
E(30-50)	4	3
F(40-50)	6	3

Draw Time scaled version network. Workout daily requirement of labours for all activities. Prepare histograms of EST &LST schedule. Which schedule you will prefer & why? 12

b) Explain functions of human resource management in detail. 08

Q.5a) i)Determine NPV of given cash flow stream of a project.Also comment whether project can be accepted or not? Rate of interest = 7 %. 06

Year	0	1	2	3	4	5
Cash flow (Rs)	2,00,000	50,000	60,000	60,000	70000	75,000

ii) Expain ,Time value of money. 04

b) What is an accounting? Also explain generally accepted principles of accounting? 10

Q.6) Write notes on following (Any 5) 20

i) Network Rules ii) Mile stone chart iii) Economic Order Quantity
iv) Performance Evaluation of worker v) Application of Primavera
vi) Sources of funds required for a project. vii) Safety campaign

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