

BE (Civil) R19 CScheme

13-05-25

Time: 3-hour

Max. Marks: 80

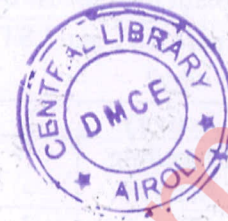
Note:

Question 1 is Compulsory

Attempt any three of remaining five questions

Figure to Right indicates full Marks

Assume the suitable data and clearly state the same



- Q1a. Explain 14 principles given by Mr. Henry Fayol for successfully running the organization 10M
- Q1b. Determine the critical path and Project Duration, Activity times and all the types of floats. 10M

Activity	Succeeding Act	Duration
A	C, D	2
B	F, G	3
C	F, G	7
D	E	2
E	K	2
F	K	5
G	H, I	3
H	K	1
I	-	4
K	-	6

- Q.2a. Following is the data of associated with research and development project (All Durations in Months)

Activity	A	B	C	D	E	F	G
Preceding Activity	-	-	A	B	A	B	C, D
to	6	5	4	4	4	2	4
tm	9	8	7	7	7	5	10
tp	12	17	22	16	10	8	22

- i) Determine the Duration, standard deviation, and variance of project.
- ii) What is the probability of completing the project in 29 months?
- iii) What is the schedule duration with 90% probability?
- iv) What is the schedule duration with 98% probability

Z	-3	-2	-1	0	1	2	3
P%	0.13	2.28	15.87	50	84.13	97.72	99.87

- Q.2.b. i) Work Breakdown Structure
- ii) Differentiate CPM and PERT

g procl

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Q3a.	What is Resource Smoothing and Leveling. Explain the process of Resource smoothing.	8M																																				
Q.3b.	Prepare EST and LST schedule. Prepare resource histogram Which schedule you will prefer and why? <table><tr><td>Activity</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td></tr><tr><td>Preceding Activity</td><td>-</td><td>A</td><td>-</td><td>-</td><td>-</td><td>C</td><td>B, E</td><td>F, G</td></tr><tr><td>Time</td><td>2</td><td>2</td><td>2</td><td>4</td><td>2</td><td>3</td><td>3</td><td>4</td></tr><tr><td>Mason/Day</td><td>6</td><td>7</td><td>3</td><td>9</td><td>4</td><td>8</td><td>2</td><td>1</td></tr></table>	Activity	A	B	C	D	E	F	G	H	Preceding Activity	-	A	-	-	-	C	B, E	F, G	Time	2	2	2	4	2	3	3	4	Mason/Day	6	7	3	9	4	8	2	1	12M
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Q.4.a	Determine the optimum cost and optimum duration of project. Data for each activity is given. Indirect cost = 4,000 Rs/ Day. <table><tr><td>Activity</td><td>Normal Time</td><td>Crash Time</td><td>Normal Cost (In Lakhs)</td><td>Crash Cost (In Lakhs)</td></tr><tr><td>U (1-2)</td><td>12</td><td>8</td><td>0.9</td><td>1.1</td></tr><tr><td>V (2-3)</td><td>28</td><td>18</td><td>0.75</td><td>1.1</td></tr><tr><td>W (3-5)</td><td>24</td><td>14</td><td>0.9</td><td>1.2</td></tr><tr><td>X (1-4)</td><td>18</td><td>12</td><td>1.2</td><td>1.5</td></tr><tr><td>Y (4-5)</td><td>24</td><td>23</td><td>0.4</td><td>1</td></tr><tr><td>Z (5-6)</td><td>12</td><td>12</td><td>1</td><td>1</td></tr></table>	Activity	Normal Time	Crash Time	Normal Cost (In Lakhs)	Crash Cost (In Lakhs)	U (1-2)	12	8	0.9	1.1	V (2-3)	28	18	0.75	1.1	W (3-5)	24	14	0.9	1.2	X (1-4)	18	12	1.2	1.5	Y (4-5)	24	23	0.4	1	Z (5-6)	12	12	1	1	12M	
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Q.4.b	What do you mean by time and cost over run? Discuss the causes of time over run and cost over run. What are the control measures to avoid time and cost over run.	8M																																				
Q.5a.	What is need of updating the schedule? Discuss the procedure of updating the schedule.	8M																																				
Q.5b.	What are the causes of accidents? Suggest the corrective measures to avoid accidents on construction site	8M																																				
Q.5c.	What is the role of inspection in Quality control	4M																																				
Q6	Solve any 4 (5 Marks each)	20M																																				
i)	Principles of scientific management																																					
ii)	Roles of various agencies involved in construction project																																					
iii)	ABC Analysis																																					
iv)	Role of safety in construction																																					
v)	OSHA																																					
vi)	Workmen compensation act																																					