

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-V Semester (CSE/IT/ECE/CE/BT/B)

COURSE CODE (CREDITS): 18B1WCE531 (3)

MAX. MARKS: 15

COURSE NAME: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

COURSE INSTRUCTORS: Dr. KAUSHAL KUMAR

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks																																													
Q1	(a) Define Project Management. List any four objectives of project management in construction projects. What are the elements of Project Management? (b) Differentiate between Project and Operation with one example each.	1	3																																													
Q2	What are the Advantages and Disadvantages of Gantt Chart Diagram? How the Disadvantages of it will be addressed?	1	2																																													
Q3.	Draw the network representing the following activity relationship using minimum number of dummies. i. A, B and C are initial activities. vi. F precedes M. ii. Q, M and R are finishing activities. vii. Q follows P, L and N. iii. H precedes N but follows D. viii. L precedes R but follows C. iv. E follows D but precedes N. ix. G follows D v. F and L follow K and B. x. K and D follow A. xi. F precedes P but follows G.	1	4																																													
Q4.	A project has the following activities with three time estimates (in weeks): <table><tr><th>Activity</th><th>Predecessor(s)</th><th>t_o</th><th>t_m</th><th>t_p</th></tr><tr><td>A</td><td>—</td><td>2</td><td>4</td><td>6</td></tr><tr><td>B</td><td>A</td><td>3</td><td>5</td><td>9</td></tr><tr><td>C</td><td>A</td><td>2</td><td>3</td><td>8</td></tr><tr><td>D</td><td>B, C</td><td>4</td><td>6</td><td>12</td></tr></table> (a) Draw the network diagram. (b) Calculate the expected time (te) and variance (σ ²) for each activity. (c) Determine the critical path and the expected project duration. (d) Assuming a normal distribution, find the probability of completing the project in 17 weeks. Normal Distribution Probability Chart. <table><tr><th>Z(+)</th><td>0.9</td><td>1.0</td><td>1.1</td><td>1.2</td><td>1.3</td><td>1.4</td><td>1.5</td><td>1.6</td><td>1.7</td></tr><tr><th>Prob. (%)</th><td>81.59</td><td>84.13</td><td>86.43</td><td>88.49</td><td>90.32</td><td>91.92</td><td>93.32</td><td>94.52</td><td>95.54</td></tr></table>	Activity	Predecessor(s)	t _o	t _m	t _p	A	—	2	4	6	B	A	3	5	9	C	A	2	3	8	D	B, C	4	6	12	Z(+)	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	Prob. (%)	81.59	84.13	86.43	88.49	90.32	91.92	93.32	94.52	95.54	2	6
Activity	Predecessor(s)	t _o	t _m	t _p																																												
A	—	2	4	6																																												
B	A	3	5	9																																												
C	A	2	3	8																																												
D	B, C	4	6	12																																												
Z(+)	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7																																							
Prob. (%)	81.59	84.13	86.43	88.49	90.32	91.92	93.32	94.52	95.54																																							