BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: B.ARCH **SEMESTER : X**
BRANCH: ARCHITECTURE **SESSION : SP/2025**

SUBJECT: AR552 CONSTRUCTION PROJECT MANAGEMENT

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	What are the various types of projects based on type of financing?	[5]	1	1
Q.1(b)	Describe in detail 'The Project Life Cycle'.	[5]	1	2
Q.2(a)	Explain the limitations of the 'Bar Chart Technique' in Project Management?	[5]	2	2
Q.2(b)	Develop the bar chart end estimate the project completion time. Divide the whole project in four equal phases and hence derive the cost histograms.	[5]	2	3

Activity	Duration(Days)	Cost in %	Inter-Relationship
A	7	21	Starting Activity
B	4	16	Start after3 days of A start
C	11	22	Start with B
D	3	21	Can Start with B & C
E	4	8	Start after C& D
F	2	12	Start after E

Q.3(a)	Differentiate between CPM and PERT	[5]	3	2
Q.3(b)	For the following project, find the project duration and the critical path.	[5]	4	5

Activity	Immediate Successor	Duration(Days)
A	C,D	6
B	E,G	8
C	E,G	4
D	G	3
E	F	6
F	-	2
G	-	10

Q.4(a)	If the critical path of a project is 20 months along with a standard deviation of 4 months, what is the Z factor for the project to be completed within: (i) 20 months (ii) 18 months ?	[5]	4	4
Q.4(b)	A construction project includes activities as per the table below. The event nodes and three PERT times are listed below. Establish the PERT network and identify the critical path by calculating all the four floats.	[5]	5	5

Activity	Event-Nodes	PERTtimes(days)	Activity	Event-Nodes	PERTtimes (days)
A	1-2	2-5-14	G	4-5	1-3-5
B	1-3	3-6-15	H	5-6	2-3-10
C	2-4	DUMMY	I	5-7	2-3-4
D	3-4	1-2-3	J	5-8	4-7-16
E	2-6	7-10-25	K	6-8	4-6-14
F	3-7	4-11-12	L	7-8	4-6-20

PTO

Q.5(a)	Write Short Notes on 'Resource Allocation' (with suitable example).	[5]	5	2
Q.5(b)	Followings are the two alternative of a certain project. Discuss the feasibility of the alternatives based on Net Present Value (NPV) method.	[5]	6	4

Project: I
Initial investment:Rs25,000
Return for first and second year: Rs 5,000 (each) Return for third and fourth year: Rs12,000 (each)

Project: II
Initial investment : Rs30,000
Return for first to fourth year: Rs 10,000 (each)
(Take the Discount rate as 10% for both the Projects)

::::::26/04/2025::::::E