

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

**CLASS: B.ARCH
BRANCH: ARCHITECTURE**

**SEMESTER : X
SESSION : SP/2023**

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.
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|---------------------------------------------------------------------------------------------------------------------------------------|-----|----|--|-------|
| Q.1(a) What do you understand by Project and explain the objectives of the project management? | [5] | 1 | | Lvl.1 |
| Q.1(b) Explain briefly the special knowledge areas for the Construction Project management. | [5] | 3 | | Lvl.2 |
| Q.2(a) Explain the different steps required for time management of any construction project! | [5] | 1 | | Lvl.2 |
| Q.2(b) Explain the advantages & disadvantages of bar chart and Further Prepare a Bar chart for the following activities of a project. | [5] | 2 | | Lvl.3 |

Activities	Duration(Days)	Preceding Act
A	5	
B	3	A along with C
C	4	B
D	3	B
E	1	B&C

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| Q.3(a) Explain AOA and AON and what is the importance of the diagramme? | [5] | 1 | | Lvl.1 |
| Q.3(b) Explain Following with some example :
a) Profitability Index (PI)
c) In a project Rs.1,00,00,000/- an initial investment of establishing a project B. The annual cash flow is as under. Annual Return are 60 lac, 70 lac and 85lac in 1 st 2 nd abd 3 rd year and annual expenditure is 30lac 30 lac and 25 lac in 1 st 2 nd abd 3 rd year. Then calculate the Payback period | [5] | 2 | | Lvl.2 |

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| Q.4(a) Calculate the Total Project Duration and Critical Path, and Total float for Activity E for the Following project. | [5] | 2 | | Lvl.3 |
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Activity	A	B	C	D	E	F	G	H	I	J	K	L
Duration	1	4	1	1	2	2	1	1	2	7	4	2
predecessor	-	A	A	B	C	C	D	E	G	G	H,F	I,J,K

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| Q.4(b) For the given activities determine:
1. Critical path using PERT.
2. Calculate variance and standard deviation for each activity.
3. Calculate the probability of completing the project in 26 days. | [5] | 3 | | 1& Lvl.3 |
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Activity	A	B	C	D	E	F	G	H
predecessor	-	-	A	B	B	A	C,D	E
To	6	3	2	4	1	5	7	1
tm	9	4	5	6	1.5	6	8	2
tp	12	11	14	8	5	7	15	3

- Q.5(a) Explain Project Crashing with example and concept of Cost slope concept. [5] 2 Lvl.4
- Q.5(b) Calculate the Minimum cost for the following project and its duration with the cost [5] 2 Lvl.4 optimization technique.

Activity	A	B	C	D	E
predecessor	-	A	B	B	C,D
Normal Duration	2	5	6	7	4
Crash Duration	2	4	4	5	3
Normal Cost	120	180	170	150	190
Crash Cost	0	240	210	220	240

Activity	A	B	C	D	E
predecessor	-	A	B	B	C,D
Normal Duration	2	5	6	7	4
Crash Duration	2	4	4	5	3
Normal Cost	120	180	170	150	190
Crash Cost	0	240	210	220	240