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

CLASS: IMSC **SEMESTER : III[RD]**
BRANCH: IMH **SESSION : MO/2025**

SUBJECT: PE309 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.

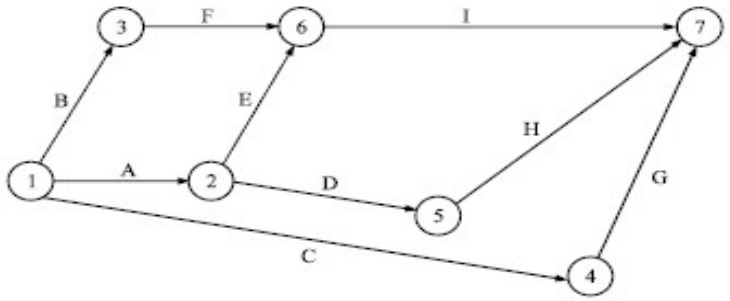
			CO	BL
Q.1(a)	Explain the importance of environmental considerations in project evaluation. Discuss how environmental impact assessments (EIA) influence project approval and sustainability.	[5]	3	4
Q.1(b)	Explain the process of project risk analysis. Describe how a project manager can prioritize and respond to risks using a risk matrix.	[5]	2	5
Q.2(a)	Illustrate the different phases of a project life cycle. How does effective management in the initiation and closing phases impact overall project success?	[5]	1	3
Q.2(b)	Distinguish between economic, financial, and management appraisals of a project. Analyze how these dimensions collectively ensure the viability and sustainability of a proposed project.	[5]	2	4
Q.3(a)	Discuss the major project constraints (time, cost, and quality). Propose a strategy a project manager could use to balance these constraints when unexpected delays occur.	[5]	1	4
Q.3(b)	Identify and explain the primary issues examined in a project feasibility study. How do these issues determine whether a project should proceed?	[5]	3	2
Q.4(a)	The precedence relationships for the activities of a project are given below. Draw the AON Diagram.	[5]	4	2

Activity	Immediate Predecessor	Activity	Immediate Predecessor
A	—	G	B, C
B	—	H	C
C	—	I	E, F
E	A	J	G, H
F	A, B	K	H

PTO

Q.4(b) The following network diagram represents activities associated with a project: [5] 5 3

Activity	A	B	C	D	E	F	G	H	I
Most likely time (t_m)	8	20	33	18	20	9	10	8	4
Pessimistic time (t_p)	10	22	40	20	25	12	12	9	5
Optimistic time (t_0)	5	18	26	16	15	6	7	7	3



Determine the following:

(a) Expected completion time and variance of each activity.

(b) The earliest and latest expected completion times of each event.

(c) The critical path.

Q.5(a) A project consists of a series of tasks labelled A, B, ... , H, I with the following relationships W < X Y means X and Y cannot start until W is completed; X Y < W means W cannot start until both X and Y are completed. With this notation construct the network diagram having the following constraints: [5] 4 2

A < D, E; B, D < F; C < G; B < H; F, G < I.

Q.5(b) A project schedule has the following characteristics- [5] 5 3

Activity	Duration	Activity	Duration
1–2	5	4–6	9
1–3	2	4–7	5.83
2–5	8.33	6–9	2
3–4	12.17	8–9	5.17
4–5	0	7–10	13
5–8	7	9–10	4.67

1. Compute the earliest and latest event time.
2. Determine critical path and total project duration.
3. Compute free float, independent float for each activity.