

**PROJECT PLANNING AND MANAGEMENT
(CIVL 4121)**

Time Allotted : 2½ hrs

Full Marks : 60

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 4 (four) from Group B to E, taking one from each group.*

Candidates are required to give answer in their own words as far as practicable.

Group - A

1. Answer any twelve:

12 × 1 = 12

Choose the correct alternative for the following

- (i) What is the critical path in a project?
 - (a) The longest path through the project network diagram
 - (b) The path with the most tasks
 - (c) The path that requires the most resources
 - (d) The path that is easiest to complete.
- (ii) What is the purpose of a Gantt chart in project management?
 - (a) To allocate resources
 - (b) To identify project risks
 - (c) To visualize project tasks and their timelines
 - (d) To track project costs.
- (iii) Which of the following rollers are suitable for soil cement stabilized road construction?
 - (a) Vibratory rollers
 - (b) Sheep-foot rollers
 - (c) Pneumatic rollers
 - (d) Smooth wheel rollers.
- (iv) While submitting a tender the contractor is to deposit a certain amount of money with the department as guarantee to the tender. The deposit is called
 - (a) security deposit
 - (b) retention money
 - (c) earnest money
 - (d) any of these.
- (v) Dump trucks are
 - (a) self propelled hauling equipment
 - (b) towed hauling equipment
 - (c) self propelled excavating equipment
 - (d) none of these.
- (vi) What is the primary purpose of the Critical Path Method (CPM)?
 - (a) Identifying project stakeholders
 - (b) Analyzing project risks
 - (c) Determining the shortest path to complete a project
 - (d) Assessing project quality.

- (vii) For excavating solid rocks, the most suitable equipment
 - (a) Dragline
 - (b) Power shovel
 - (c) Clamshell
 - (d) Hoe.
- (viii) In PERT, what does the "expected time" of an activity represent?
 - (a) The best-case scenario for completing the activity
 - (b) The worst-case scenario for completing the activity
 - (c) The average time it will take to complete the activity
 - (d) The time allocated in the project schedule.
- (ix) Minimum width of the staircase in your college should be
 - (a) 1 m
 - (b) 1.2 m
 - (c) 1.5 m
 - (d) 2 m.
- (x) While filling the tender for any work, the contractor considers
 - (a) site survey
 - (b) availability of construction material
 - (c) availability of labour
 - (d) all of the above.

Fill in the blanks with the correct word

- (xi) PERT stands for _____.
- (xii) A dump truck is also called as _____.
- (xiii) FAR of any building stands for _____.
- (xiv) PWD is the abridged form of _____.
- (xv) Item rate contract is also termed as _____.

Group - B

- 2. (a) A building has to be constructed on a plot area of 1200 sq.m. .The site about two streets, one of 35 m width and another 10 m FAR is 2.0. If each storey contains 5 flats, determine the built up area of the building and its height. Ground coverage is maximum 60%. [[CO5)(Analyze/HOCQ]]
 - (b) Write short notes on:
 - (i) Carpet area and Ground Coverage
 - (ii) Circulation. [[CO5)(Apply/IOCQ]]

6 + 6 = 12
 - 3. (a) Write short notes on : (i) Roominess (ii) Kolkata Building rules for Bathroom and water closet. [[CO5)(Remember/LOCQ]]
 - (b) A building is to be constructed on a plot area of 1500 sq.m. The site is adjacent about two streets, one of 30 m width and the other of 20 m, FAR is 2.0. If each storey contains 3 flats, determine the built up area of the building and its height. Ground coverage is maximum 50%. [[CO5)(Analyze/HOCQ]]
- 5 + 7 = 12**

Group - C

- 4. (a) Find the output of 3 cum power shovel excavating material whose swell is 30%. It handles average heaped loose volume of 3.25 cum with cycle time of 30 secs. [[CO3)(Evaluate/HOCQ]]

- (b) Write short note on power shovel. [[CO3](Remember/LOCQ)]
7 + 5 = 12
5. (a) Explain the operation involved in concrete construction. [[CO4](Analyze/IOCQ)]
 (b) Write short note on Sheep foot rollers. [[CO3](Remember/LOCQ)]
7 + 5 = 12

Group - D

6. (a) A small project consisting of eight activities has following characteristics. Determine the critical path and draw the network diagram of the project.

Time – Estimates (in weeks)

Activity	Preceding activity	Most optimistic time (a)	Most likely time (m)	Most Pessimistic time (b)
A	None	2	4	12
B	None	10	12	26
C	A	8	9	10
D	A	10	15	20
E	A	7	7.5	11
F	B,C	9	9	9
G	D	3	3.5	7
H	E,F,G	5	5	5

- (b) Describe event and activity with example. [[CO2](Analyze/HOCQ)]
[[CO2](Apply/IOCQ)]
8 + 4 = 12
7. (a) Define series activities, parallel activities, predecessor activity and successor activity with example. [[CO1](Remember/LOCQ)]
 (b) Define head event, tail event, dual role event, successor and predecessor event with examples. [[CO1](Remember/IOCQ)]
 (c) Draw a network diagram based on the following information.

Activity	Identification	Activity	Identification
A	(1,2)	G	(4,6)
B	(2,4)	H	(5,6)
C	(2,3)	I	(5,7)
D	(2,7)	J	(7,8)
E	(3,4)	K	(6,8)
F	(3,5)	L	(8,9)

[[CO2](Analyze/HOCQ)]
4 + 6 + 2 = 12

Group - E

8. (a) What is arbitration? What is the need of arbitration? [[CO3](Remember/IOCQ)]
 (b) What are the wanted qualifications of arbitrator? [[CO3](Understand/IOCQ)]
 (c) What are the ground to challenge an arbitrator? [[CO3](Understand /IOCQ)]
5 + 4 + 3 = 12

9. Discuss any three types of tender in details.

[[CO4](Remember/LOCQ)]

(4 × 3) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	32.29	36.46	31.25

Course Outcome (CO):

After the completion of the course students will be able to

1. Understand the tender and bar chart of any project.
2. Compute the critical path of a project.
3. Understand the various construction equipment and its suitability.
4. Study the design and operation of a solid waste landfill, site remediation and reclamation.
5. Develop knowledge about the different by-laws and understand the process of arbitration.

**LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question; HOCQ: Higher Order Cognitive Question.*