

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

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

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

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) If the width of the means access of a plot is above 7 m to 10 m, the maximum permissible height of the building?
(a) 11 m (b) 12 m (c) 14 m (d) 18 m.
- (ii) Minimum width of the staircase in your college should be
(a) 1 m (b) 1.2 m (c) 1.5 m (d) 2 m.
- (iii) Which of the following is correct about the network diagram?
(a) The events are represented graphically by circle or nodes at the beginning or end of the activity by arrows
(b) The tail end of the arrow represents the start of an activity
(c) The head of the arrow represents the end of an activity
(d) All of these.
- (iv) The suitable type of equipment for compaction of cohesive soil is
(a) smooth-wheeled rollers (b) vibratory rollers
(c) tampers (d) sheep foot rollers.
- (v) PERT network is
(a) activity oriented (b) event oriented
(c) both activity and event oriented (d) neither activity nor event oriented.
- (vi) An activity is
(a) the beginning or end of a specified job
(b) an element of work entailed in the project
(c) the movement of heavy vehicles from one place to another
(d) the progress of work up to a certain limit.
- (vii) The occurrence of the starting of an activity, is called its
(a) head event (b) tail event (c) dual role event (d) dummy.
- (viii) Critical path
(a) is always longest (b) is always shortest
(c) may be longest (d) may be shortest.

- (ix) PERT stands for
(a) Programme Estimation and Reporting Technique
(b) Programme Evaluation and Review Technique
(c) Process Estimation and Review Technique
(d) Planning Estimation and Resulting Technique.
- (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.

Group - B

2. (a) A residential building is to be constructed on a plot area shown in the Fig.1. F.A.R. in 2 maximum ground coverage is 50%. Determine the built-up area of the building. [(CO5)(Evaluate/HOCQ)]

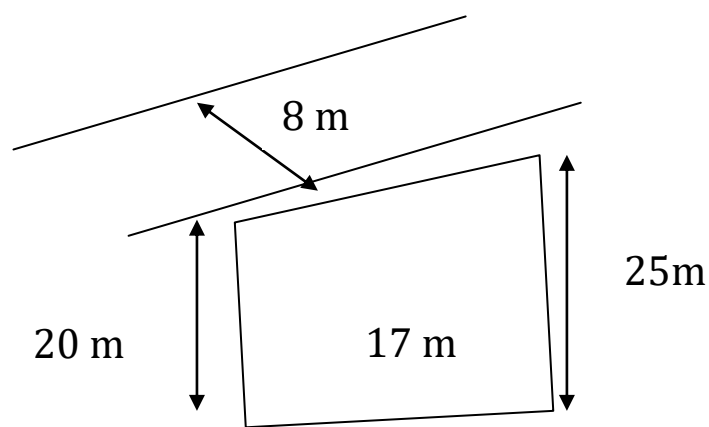


Fig.1

- (b) Write short notes on:
(i) Carpet area and Ground Coverage
(ii) Circulation. [(CO5)(Understand/LOCQ)]
5 + 7 = 12
3. (a) 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)(Evaluate/HOCQ)]
(b) What are the basic requirements of building planning? [(CO5)(Understand/LOCQ)]
8 + 4 = 12

Group - C

4. (a) Calculate the time required to grade and finish 30 km of road formation of 9.0 m width for two lane road with motor grader having width of 3.0 m, using 6 passes with speed for each of the successive two passes at 5 kmph, 7 kmph and 9 kmph, respectively. Assume machine efficiency based on operator skill, machine characteristics and working conditions as 80 %. [(CO4)(Evaluate/HOCQ)]
(b) Write short note on power shovel. [(CO4)(Remember/LOCQ)]
7 + 5 = 12
5. (a) Explain the operation involved in concrete construction. [(CO4)(Analyze/IOCQ)]
(b) Write short note on scraper. [(CO4)(Understand/LOCQ)]
7 + 5 = 12

Group - D

6. (a) A small project consisting of eight activities has following characteristics.

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

Determine the critical path and draw the network diagram of the project.

[[CO3)(Analyze/HOCQ)]

(b) Draw the comparison between CPM and PERT.

[[CO3)(Understand/LOCQ)]

8 + 4 = 12

7. (a) What is the difference between event and activity?

[[CO1)(Remember/LOCQ)]

(b) A project consists of 10 activities as detailed below. Draw an arrow diagram representation of the project.

Job activity	Immediate Predecessors
M	-
N	M
O	M
P	M
Q	N
R	O
S	P
T	P
U	Q,R,S
V	T,U

[[CO3)(Analyze/HOCQ)]

(c) Define dummy activity. What are the uses of dummy?

[[CO3)(Understand/IOCQ)]

3 + 5 + 4 = 12

Group - E

8. Write short notes on:

(i) Earnest Money Deposit (EMD) (ii) Security Deposit (iii) Retention Money.

[[CO5)(Understand/IOCQ)]

(4 + 4 + 4) = 12

9. Write short notes on:

- (i) Unbalanced tender (ii) Secured advance (iii) Liquidated damage

[(CO2)(Remember/LOCQ)]

(4 + 4 + 4) = 12

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	41.66	23.96	34.38

Course Outcome (CO):

After the completion of the course students will be able to

1. Develop the bar chart for the project.
2. Compile the tender documents.
3. Estimate the critical path of the project i.e., the maximum duration which the project requires for completion.
4. Understand the uses of various construction equipments at site and the preparation of concrete.
5. Make use of the bylaws of different authorities to get the approval of drawings for construction.
6. Understand the process of arbitration in-case the projects suffer from disputation.

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