

II B.Tech. II Semester Regular Examinations, April/May -2005
BUILDING PLANING AND CONSTRUCTION MANAGEMENT
(Civil Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the objectives of building bye-laws.
2. Discuss in detail the rules related to staircases and the necessity of lifts in a building.
3. (a) What do you mean by 'bar chart'?
 (b) Explain the features which make it a widely accepted tool as well as its limitations.
4. A project has the following schedule. Construct the PERT network and compute the earliest start time for each activity.

Activity	Time in weeks	Predecessors
A	3	None
B	2	A
C	4	A
D	5	B
E	3	C
F	6	D

5. (a) Draw a section through a double storey residential structure to include all relevant heights, upto and including parapet wall.
 (b) Draw plan and elevation to show the dimensions of the following:
 - i. dining chair
 - ii. single bed
 - iii. three-seater sofa.
6. Design an village panchayat office for the following requirements and draw a line diagram .
 - (a) Entrance and waiting room
 - (b) Meeting hall to accommodate 40 people
 - (c) V.P. President Chambers with attached toilet
 - (d) V.P. Secretary Chambers with attached toilet
 - (e) Office for 10 staff
 - (f) Toilet blocks - 2 Nos.

- (g) Necessary provision to be made for corridors.
7. In a factory the average stock level should be around 750 including all items due to financial restrictions. There are three products, details of which are given below:

Stocks	1	2	3
Holding cost per unit per time	0.05	0.00	0.04
Set up cost per production run	50	40	60
Rate of demand per unit time	100	120	75

- Estimate the optimal production quantities.
8. Write a detailed note on the various types of earth-moving equipment.

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1. How are building classified? Explain in brief the regulations for any three types of buildings.
2. (a) Define illumination. Give the principles of illumination for the following buildings.
 - i. Air port buildings
 - ii. Hotels
 - iii. Hospitals
 (b) Write a note on Day-lighting.
3. (a) What is line of balance diagram?
 (b) Compare this as a planning tool with other commonly used tools.
4. A project has the following schedule:

Activity	Time in weeks	Predecessors
A	4	None
B	1	None
C	1	A
D	1	B
E	6	B
F	5	C,D
G	4	E
H	8	E
I	1	G
J	2	H
K	5	I,J
L	7	F

Construct a PERT network and compute an early start, a late start and slack time for each activity. Find the critical path.

5. (a) Draw a sketch/bubble diagram indicating the circulation between dining, kitchen, store and puja rooms.
 (b) What should be the minimum size of a store attached to a kitchen? Draw a plan and section to show typical details.
6. Design a College Canteen for the following requirements. Draw a line diagram and assume data suitably.

- (a) Entrance Hall
- (b) Dining Hall of 100 Sqm
- (c) Staff room of 30 Sqm
- (d) Staff room for ladies of 30 Sqm
- (e) Kitchen of 40 Sqm
- (f) Store of 15 Sqm
- (g) Utility of 20 Sqm
- (h) Toilet blocks 2 Nos.
- (i) Xerox counter-15 Sqm
- (j) STD booth-15 Sqm

7. The experience of a firm being out of stock is summarized below:

Stock out (no. of times)	No. of times
500	1
400	2
250	3
100	4
50	10
0	80
	100 (Total)

Assuming the stockout costs are RS.40/- per unit and the carrying cost of inventory per unit is Rs.20/-, estimate the optimum level of stockout inventory.

8. Write a detailed note on the economic viability of a construction firm to invest in heavy construction equipment.

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1. (a) Define the following terms:
Front open space, plinth, room height, window.
(b) List the documents and details required for construction of building as laid by the building regulations.
2. (a) Differentiate between natural ventilation and artificial ventilation.
(b) Define 'air charges' and give the recommended air changes for the following
3. (a) Explain the critical path method.
(b) What is meant by Early start and Finish and Late start and Finish?
4. A project has the following characteristics:

Activity	Predecessors	Duration	Workers/day
A	None	3	9
B	None	5	6
C	None	1	4
D	A	1	10
E	B	7	16
F	B	6	9
G	C	4	5
H	C	3	8
I	D,E	6	2
J	F,G	4	3
K	H	3	7

Suggest a project schedule that completes the project in minimum time and results in relatively constant or level requirements for labour over the course of the project.

5. (a) Draw a plan to show
 - i. the typical dimensions of a car and the minimum size of a enclosed garage, indicating dimensions clearly.
 - ii. the minimum road width and movement space to provide access to the garage.
 (b) How can you ensure that rain water does not enter the garage?
6. Design a post office for a city for the following requirements and draw a line diagram.

- (a) Public space
 - (b) Space for counters of 10 Nos.
 - (c) Space for Post Master chambers with attached toilet -1 No.
 - (d) Space for post sartin counter - 1 No.
 - (e) Space for strong room -1 No.
 - (f) Space for store room - 1 No.
 - (g) Space for record room - 1No.
 - (h) Space for Asst post master chamber with attached toilet - 1No.
 - (i) Toilet blocks - 2 Nos.
 - (j) Space for rest room - 1 No.
 - (k) Space for recreation room - 1 No.
7. In a factory the average stock level should be around 750 including all items due to financial restrictions. There are three products, details of which are given below:

Stock	1	2	3
Holding cost per unit per time	0.05	0.0	0.04
Set up cost per production run	50	40	60
Rate of demand per unit time	100	120	75

Estimate the optimal production quantities.

8. Write short notes on:
- (a) The functioning of belts and conveyers
 - (b) Earth compaction equipment

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1. Write short notes on the following:
 - (a) Building bye-laws
 - (b) Classification of buildings
 - (c) Open spaces in buildings
2. (a) Differentiate between natural lighting and artificial lighting.
 (b) Define luminous flux. Give the recommended values of illumination for following locations:
 - i. Banks
 - ii. Cinemas
 - iii. Schools
3. (a) Explain normal and crash estimates under the CPM system.
 (b) How can linear programming be used to optimize time-cost trade-off in a project schedule?
4. (a) Which planning technique is suited for repetitive works? Explain briefly.
 (b) A contract consists of 100 bored piles. The activities and associated information for each pile are presented in the table below:

Activity	Description	Man-day	Optimum no. of men per gang
A	Boring	20	10
B	Reinforcement	12	3
C	Casting	15	15

The time limit provided in the contract is four weeks. Draw a line of balance diagram to schedule the work. Assume data as required.

5. Sketch plans to show the minimum area required for the following, including clearances:
 - (a) water closet
 - (b) wash basin
 - (c) shower
 - (d) bath tub.

6. Design an health club for the following requirements and draw a line diagram.
- (a) Reception with waiting room -1No.
 - (b) Managers room - 1 No.
 - (c) Coaches room - 2Nos.
 - (d) Dressing room - 2Nos.
 - (e) Gym rooms - 2Nos.
 - (f) Toilet blocks - 2 Nos.
 - (g) Refreshment hall -1No.
7. A firm is buying about 10000 Nos. of hinges each year. The ordering cost is Rs. 30/- for each order and the carrying cost is 20% of the cost of the unit. The supplier offers the following discounts.

0-599 hinges	Rs. 7.50 each
600-900 hinges	Rs.6.75 each
Above 1000 hinges	Rs.5.85 each

Estimate the EOQ and the total cost with price discounts.

8. Write short notes on:
- (a) Earth-moving equipment
 - (b) Earth compaction equipment
