

**II B.Tech. II Semester Regular Examinations, April/May -2006**  
**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. [16]
2. (a) Define plinth area. List the areas which have to be included and which have to be excluded while calculating plinth area.  
 (b) Write a note on Floor Space Index. [8+8]
3. Design a bank building to be constructed at a Taluk head quarters with the following requirements and draw the line diagram. Assume suitable areas.  
 (a) Public space with counter.  
 (b) Working space (official)  
 (c) Managers Room.  
 (d) Meeting hall  
 (e) Safe deposit locker and strong room.  
 (f) Records room  
 (g) Recreation room  
 (h) Store room  
 (i) Toilets  
 Note: Provide all the above said units in Ground Floor only. [16]
4. (a) Differentiate between natural and artificial lighting.  
 (b) Define luminous flux. Give the recommended values of illumination for the following locations.  
 i. Banks  
 ii. Cinemas  
 iii. School. [8+8]
5. The present inventory situation in a site is shown in the table below. The ordering cost and carrying cost are not known. Optimise the inventory cost.

Item	Rs. used per year A	No. of orders per year	Rs. per order	Average inventory
1	10000	4	2500	1250
2	8000	4	2000	1000
3	5000	4	1250	625
4	1000	4	250	125
5	600	4	150	75

[16]

6. Write short notes on any two:

- (a) Early Start and Early Finish Times.
- (b) Normal Time and Crash Time.
- (c) Time Cost relationship.

[16]

7. 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

[16]

8. Write a detailed note on the various types of earth-moving equipment.

[16]

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1. How are building classified? Explain in brief the regulations for any three types of buildings. [16]
2. (a) Define Floor Area. In the calculation of Floor Area Ratio. List the areas which have to be included and excluded while calculating Floor Area Ratio.  
(b) Define Carpet Area. List the portions of building that have to be excluded while calculating carpet area. [8+8]
3. Design a Primary Health Center with following facilities.
  - (a) Entrance and waiting space
  - (b) Doctors consultation room 2 Nos.
  - (c) Examination room
  - (d) Operation Theatre
  - (e) Medical store
  - (f) Office
  - (g) Laboratory
  - (h) Family planning unit
  - (i) Male wards for 10 beds
  - (j) Female wards for 10 beds
  - (k) Toilet blocks 2Nos.Draw a single line diagram with suitable dimensions. [16]
4. (a) Differentiate between natural ventilation and artificial ventilation.  
(b) Define 'air changes' and give the recommended air changes for the following.
  - i. Kitchen
  - ii. Cinema theater
  - iii. Offices. [8+8]
5. Cement is used in a precast plant at the rate of 30 tons per month. The cost of cement is Rs.2,600/- per ton. The ordering cost per order is Rs.125/- only and the holding cost including wastage and pilferage is about 4-5% of the average inventory cost. Estimate the economic order quantity of cement. [16]
6. Explain the basic concept of resource management. Support your answer with a flow diagram and an example. [16]

7. 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. [16]

8. Write short notes on :

(a) Earth-moving equipment

(b) Belts and conveyors.

[8+8]

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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. [8+8]
2. List the special rules that have to be followed while constructing.
  - (a) Educational buildings
  - (b) Hospitals
  - (c) Industrial buildings
  - (d) Mercantile buildings. [4+4+4+4]
3. Design a school building for a rural area with the following requirements. The strength of the school is 400 students ( 50 in each class )
  - (a) Class rooms- 8 Nos.
  - (b) Head Masters room with attached toilet-1 No.
  - (c) Staff room for 10 members -1 No.
  - (d) Office room for 8 members -1 No.
  - (e) Library - 1 No.
  - (f) Toilets blocks - 2 No.Necessary provisions to be made for corridor, suitable dimensions may be assumed and draw a line diagram. [16]
4. (a) Define illumination. Give the principle of illumination for the following buildings.
  - i. Airport buildings
  - ii. Hotels
  - iii. Hospitals.(b) Write a note on Day-lighting. [8+8]
5. A contractor has set up a pre-cast beam making plant in a congested site. The site has very little storing space and thus requires the beams to be produced almost at the arte at which they can be played in position. The plant has a capacity to produce 2,500 beams per week. The cost of storing beam is negligible and is assumed as Rs.1/- per week. The cost of the setup for the plant for each production is Rs.50/-. The contractor requires 1000 beams per week.

- (a) What is the optimum number of units to produce in a production run?
- (b) What is the total cost of producing and storing the contractors requirements for beams?
- (c) How frequently should production be made? [16]
6. (a) Explain PERT and its utility in detail.
- (b) Discuss the problems associated with using PERT to schedule activities of uncertain duration. [8+8]
7. 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. [16]

8. Write short notes on:
- (a) Earth-compacting equipment
- (b) Economics of owning and operating construction equipment. [8+8]

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1. Write short notes on the following:
  - (a) Building bye-laws
  - (b) Classification of buildings
  - (c) Open spaces in buildings. [6+5+5]
2. List the special rules that have to be followed while constructing:
  - (a) Community Halls and Public buildings
  - (b) Cinema Theatres. [8+8]
3. 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) Office for 10 staff
  - (e) Toilet blocks 2 Nos.
  - (f) Necessary provision to be made for corridors. [16]
4. Write a note on role of a Civil Engineer while planning and constructing a building. [16]
5. A project manager buys craft paper as lining for shuttering from the market. The records indicate the following data. Monthly requirement: 2000 rolls, Price of roll: Rs.20/- each, Order cost: Rs.50/- per order, Carrying cost including pilferage and wastage: 25% of inventory value, Quantity discount: 3% for 500 rolls and 5% for 1000 rolls. Estimate the economic order quantity. [16]
6. How are resource constraints important for optimizing network schedules? [16]
7. A project has the following characteristics:

Activity	Most optimistic time in weeks	Most likely time in weeks	Most pessimistic time in weeks	Predecessors
A	0.5	1	2	None
B	1	2	3	A
C	1	3	5	A
D	3	4	5	B
E	2	3	4	C
F	3	5	7	C
G	4	5	6	D,E
H	6	7	8	F
I	2	4	6	G,H
J	5	6	8	G,H
K	1	2	3	I
L	3	5	7	J

Construct a PERT network and compute the probability that the project will be completed within 30 weeks. [16]

8. Write a detailed note on the various types of earth-moving equipment. [16]

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