PAPER ID-410058

Subject Code: KCE503

Roll No: | | | | | | | | | | | | | |

B.TECH

(SEM-V) THEORY EXAMINATION 2021-22

QUANTITY ESTIMATION AND CONSTRUCTION MANAGEMENT

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. Define Estimation.
b. Differentiate between revised and supplementary estimation.
c. How you can calculate the earliest expected time and latest allowable occurrence time in PERT?
d. Differentiate between event and activity.
e. Define optimistic time and pessimistic time used in PERT.
f. Differentiate between activity and event.
g. Enlist the factors affecting the selection of equipments
h. Write down the advantages of Hoisting equipments
i. What do you mean by Cash flow diagram ?
j. Define interest rate. How interest rate can be classified.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

(a) Classify the various types of estimation that are used in estimation of building.
(b) List the information which should customarily appear in an advertisement for tenders
(c) Draw a bar chart and compute the total duration of the project from the data given below:

Task 1	5 days
Task 2	3 days
Task 3	7 days
Task 4	2 days
Task 5	4 days

Task 1 and 4 will be started together. Task 2 will start after completion of task 3 and task 3 will take place after task 1.Task 5 will be taken only after completion of task 3.

(d) Categorize about various types of earth work equipments with special purpose usage for each equipment.

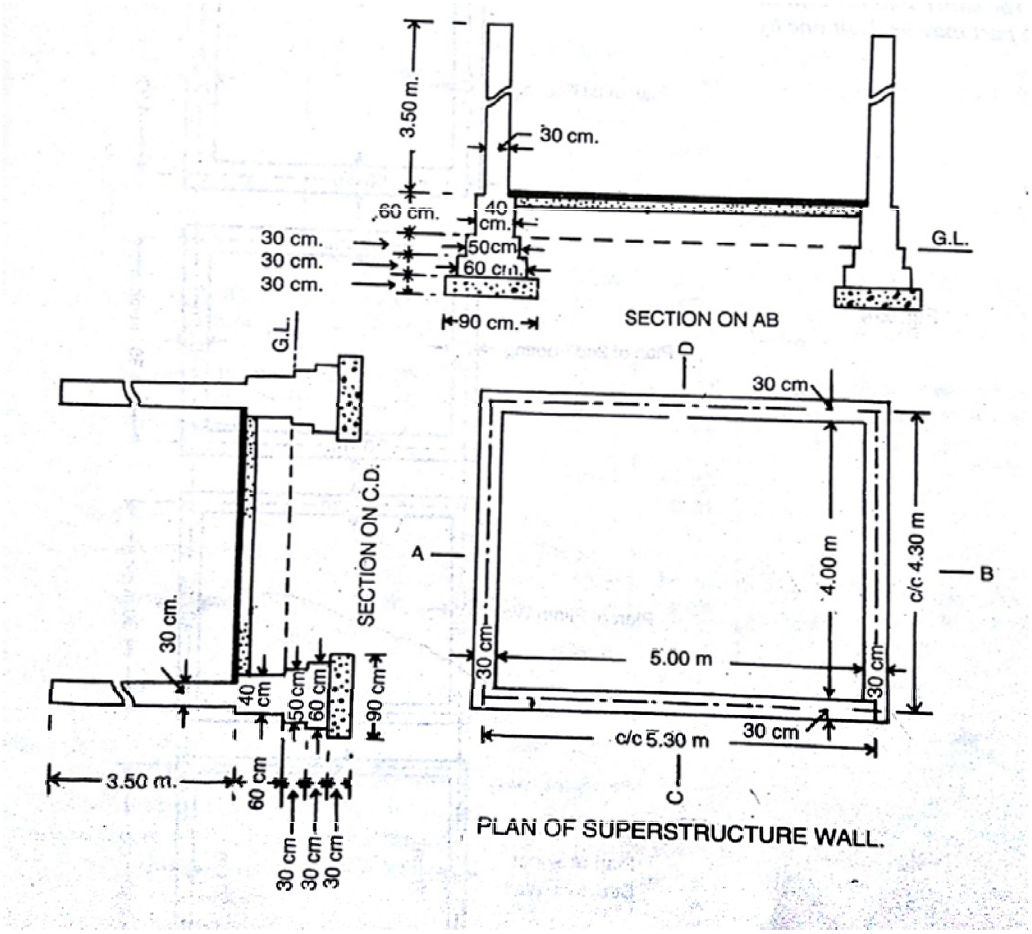
(e) What is cost Planning. Discuss the different types of cost used in cost planning with their relative graph .

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) In Figure below , the plan represents the plan of superstructure wall of a single room building of 5 m x 4 m, and sections represent the cross-sections of the walls with foundation . Estimate the quantities of –

(i)Earthwork in excavation in foundation,
(ii) Concrete in foundation,
(iii) Brickwork in foundation and plinth
(iv) Brick work in superstructure.



(b) Categorize the main items of work calculated in estimation of buildings.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain briefly the procedure of pre-qualification of contractors. State its advantages and drawbacks. List the main points to be considered while pre- qualifying the contractors.

(b) Classify the labour safety and welfare laws? Explain them.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) A small project is composed of nine activities whose time estimates are listed in the following table:

Activity	t_0	t_p	t_m
1-2	5	10	8
1-3	18	22	20
1-4	26	40	33
2-5	16	20	18
2-6	15	25	20
3-6	6	12	9
4-7	7	12	10
5-7	7	9	8
6-7	3	5	4

i) Find the expected task time and their variance.
ii) Earliest and latest expected time of each node.
iii) Critical path.

(b) (i) Explain the concept of float and slack. Distinguish between the free, independent and interfering floats.

(ii) Explain the three time estimates that are used in PERT. How are the expected duration of a project and its standard deviation calculated.

6. Attempt any *one* part of the following: 10 x1 =10

(a) What are the various types of heavy hauling equipment vehicles? Also write in brief, their relative advantages and disadvantages.

(b) Explain the following types of equipments:

i. Hoisting Equipments
ii. Conveying Equipment
iii. Transporting Equipments
iv. Hauling Equipments
v. Excavating Equipments

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Calculate the optimum duration and the cost associated with it , if the project overhead cost are @Rs250 per day. Also draw the least cost network. Table gives the data about durations and costs if various activities of the network.

Activity	Normal duration(days)	Normal cost(Rs.)	Crash Duration(days)	Crash Cost (Rs.)
1-2	9	8000	6	9500
2-3	5	5000	3	5500

(b) Discuss the following methods used in engineering economic analysis for evaluating and comparing alternatives:

(i) The Present Worth method
(ii) Future Worth method
(iii) The Annual Equivalent method
(iv) Rate of Return method