UNIT- 1 CONSTRUCTION PLANNING

PART-A

1.	Discuss about the fast track approach in construction.	BT-2
2.	Prepare a flow chart representing the role of planning in different stages.	BT-5
3.	Write any two objectives of planning.	BT-3
4.	Explain briefly the precedence relationship among activities.	BT-4
5.	Differentiate the time oriented scheduling and resource oriented scheduling.	BT-4
6.	List out the significance of coding system.	BT-1
7.	Discuss about the construction planning.	BT-2
8.	State activity precedence with an example.	BT-1
9.	Prepare a generalized report on the environmental impact assessment.	BT-5
10.	List out the uses of coding system.	BT-1
11.	Define work task.	BT-1
12.	Classify the different project planning techniques.	BT-4
13.	Write the significance of choice of technology.	BT-3
14.	Define work breakdown structure.	BT-1
15.	Identify the various resources used for construction project.	BT-1
16.	Explain the process involved in planning.	BT-6
17.	Write short notes on choice of construction method.	BT-3
18.	How will you estimate the activity duration?	BT-2
19.	Explain the basic concepts involved in development of construction plan.	BT-4
20.	Summarize the learning curve and mention its uses.	BT-6

PART - B

1.	i. Prepare work breakdown and activity network for a tunneling project by defining the precedence relationship. (8) ii. Explain in detail about the estimation of activity durations and importance of learning curves. (8)	BT-6
2.	Write short notes on i. Choice of construction technology. (8) ii. Choice of construction method. (8)	BT-3
3.	Define construction planning. Explain in detail about the basic concept involved in the development of construction plan.	BT-1
4.	Prepare a generalized report on stages of planning by different agencies.	BT-5
5.	Describe the precedence relationship between the following activities and justify the relationship	BT-1
6.	Describe the importance of coding system of activities with examples.	BT-2
7.	List out the factors deciding activity durations.	BT-1
8.	Explain the procedure to formulate activity network.	BT-4
9.	i. Write down the importance of construction planning. ii. How will you calculate activity duration. Explain in detail.	BT-3
10.	i. How do you specify precedence relationship in activity on node and activity on branch network? ii. How will you estimate the resources for work activities.	BT-2

UNIT-2 SCHEDULING PROCEDURES AND TECHNIQUES

PART-A

1.	Write down the significance of critical path?	BT-3
2.	Define activity cost slope.	BT-1
3.	Compare CPM and PERT	BT-6
4.	Define the terms: - i) Dummy activity ii) Float	BT-1
5.	State the reason why resource oriented scheduling is necessary.	BT-1
6.	List out the factors affecting scheduling.	BT-1
7.	How you will estimate the expected time for an activity.	BT-2
8.	Define the terms: - i) LFT ii) LST	BT-1
9.	Distinguish between crash cost and crash time.	BT-2
10.	Classify the types of time estimates.	BT-4
11.	List the types of network analysis.	BT-1
12.	Prepare a Gantt chart for the given activity. Activity: 1 2 3 4 5 No. of Duration (Weeks): 2 3 5 4 2	BT-5
13.	Discuss about the constraints in scheduling.	BT-2
14.	Explain the terms total float and independent float.	BT-6
15.	Write down the necessity of resources oriented scheduling.	BT-3
16.	How will you create an activity node and activity event.	BT-5
17.	Discuss about the purpose of numbering events?	BT-2
18.	Explain resource leveling and crashing.	BT-4
19.	Write down the steps involved in schedule chart.	BT-3
20.	Explain the terms :- i) EFT ii) EST	BT-4

PART -B

1.	i) The duration of activities of a project are as follows. Draw the PERT network diagram. Identify various paths. Identify the critical path. Tabulate the computations. Evaluate the project time? Activity: 1-2, 1-3, 2-4, 2-5, 4-7, 5-7, 7-8, 3-6, 6-8 Duration in days: 5, 10, 1, 6, 12, 3, 4, 7, 6 ii) Compare "Precedence network analysis and critical path method?	BT-6
2.	Explain in relation to network analysis, the terms critical activity, non-critical activity, independent float and free float?	BT-4
3.	Draw the network and design the critical path and calculate the completion time of the project whose activities are as follows.	BT-5

ACTIVITY	DURATION IN DAYS	PRECEDING ACTIVITY
A-B	7	-
B-C	10	A-B
B-D	15	A-B
C-D	7	B-C
C–E	12	B-C
D-E	3	B-D,C-D
E-F	5	C-E,D-E

4. i) Describe the various methods of presenting project schedules.
ii) What are the techniques used for scheduling a project with uncertain duration? Explain any one of them in detail? — BT-1

5. i) Explain how lead and lag affects the start and finish times of activities?
ii) What are the constraints of scheduling? Explain how each constraint affects scheduling? — BT-4

6. A project of five activities, whose activity relationships, activity durations (normal and crash) and activity costs (normal and crash) are given in the following table. Estimate the optimum cost and time. — BT-2

ACTIVITY	NORMAL		CRASH	
	TIME(WEEKS)	COST(Rs)	TIME(WEEKS)	COST(Rs)
10-20	3	12000	2	16000
10-30	6	18000	3	24000
20-40	2	20000	1	23000
30-40	4	16000	2	21000
40-50	5	30000	4	35000

7. Calculate the critical path and all the floats by constructing activity on branch network? — BT-3

Activity	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Predecessor	-	A	A	-	B	C,D	C,D	D	H	F	E,J	F	G,J	G,I	L,N
Duration	6	7	1	14	5	8	9	3	5	3	4	12	6	2	7

8. In a project consisting of two activities each activity has a duration of 5 days. Activites 1 and 2 has a start to start precedence relationship with 2 days lead, calculate the project duration. If activities 1 and 2 have finish to finish constraint with a 2 days lag. Describe what is the project duration? — BT-1

9. The following table shows the activity needed to compute the project with their normal time and the shortest time in which the activity can be completed for a building contract and the cost per day for reducing the time of each activity. The contract includes a penalty clause of Rs. 100 per day over 17 days. The overhead cost per day is Rs. 160. — BT-2

ACTIVITY	NORMAL TIME (DAYS)	SHORTEST TIME (DAYS)	COST REDUCTION PER DAY
1-2	6	4	80
1-3	8	4	90
1-4	5	3	30
2-4	3	3	-
2-5	5	3	40
3-6	12	8	200
4-6	8	5	50
5-6	6	6	-

i) Cost completing the 8 activities in normal time is Rs.6500. Estimate the normal duration of the project, its cost and its critical path

ii) Estimate the optimum duration of the project and their corresponding cost usingcost time function.

10. The details of a network are given below where the duration are in days.

ACTIVITY	t_0	t_m	t_p
1-2	2	5	8
1-3	1	4	7
2-3	0	0	0
2-4	2	4	6
2-6	5	7	12
3-4	3	5	10
3-5	3	6	9
4-5	7	6	10
4-6	2	5	8
5-6	2	4	6

Describe the critical path and project completion time?

BT-1

UNIT-3 COST CONTROL MONITORING AND ACCOUNTING

PART-A

1.	Define the term break even analysis.	BT-1
2.	Write down any one type of budgets involved in typical construction project.	BT-3
3.	List out the sources of cash inflow and cash outflow.	BT-1
4.	Differentiate financial and managerial accounting.	BT-2
5.	Explain the term project budget.	BT-6
6.	List out the classification of cost control.	BT-1
7.	Write down the advantages of financial accounting.	BT-3
8.	Explain the objectives of cost accounting.	BT-4
9.	Differentiate between fixed cost and variable cost.	BT-2
10.	Classify the types of accounting system.	BT-3
11.	Compare cost committed from cost exposure.	BT-6
12.	Explain schedule control.	BT-4
13.	Name the controls considered before start of the projects.	BT-1
14.	Define project cash flow.	BT-1
15.	Compare percentage completion method and completed contract method	BT-4
16.	Distinguish between budget cost and revised cost.	BT-2
17.	Create the S-curve and mention its uses.	BT-5
18.	List out the components of cash flow status report.	BT-1
19.	Rewrite the formula for schedule control.	BT-5
20.	Discuss about the account payable journal and accounts receivable journal.	BT-2

PART – B

1.	Describe about the cost control codes and classify the cost control system.	BT-1
2.	Describe the major causes of unfavorable direct cost variances? Explain two major objectives of budgeted cost analysis.	BT-1
3.	Explain in detail about the cost flow control in a project.	BT-4
4.	List out the various categories of cost involved in a project. Explain it in detail.	BT-1
5.	Write a brief note on i. Cost control. ii. Schedule control.	BT-3
6.	i. Differentiate between variation of direct and indirect cost. ii. Explain the different components of accounting system.	BT-2
7.	i. Explain the elements of job status report. ii. Explain project budget.	BT-6
8.	Suppose that a company began six jobs in a year, completing three jobs and having three jobs still underway at the end of the year. Details of the six jobs are shown in the table given below. Evaluate the company's net profit. a) "Percentage-of-completion"	BT-5

<table>
<tr><td></td><td>b) “Completed contract method”
<table>
<tr><td colspan="4">Net Profit on Completed Contracts (amounts in thousands)</td></tr>
<tr><td>Job 1
Job 2
Job 3
Total Net Profit on Completed Jobs</td><td colspan="3">1436
356
-738
1054</td></tr>
<tr><td>Status of Jobs underway
Original control price
Contract changes (change orders)
Total cost to date
Payments received or due to date
Estimated cost to complete</td><td>Job 4
4200
400
3600
3520
500</td><td>Job 5
3800
600
1710
1830
2300</td><td>Job 6
5630
-300
620
340
5000</td></tr>
</table></td><td></td></tr>
<tr><td>9.</td><td>Discuss how the budgetary cost control for a construction project is carriedout.</td><td>BT-2</td></tr>
<tr><td>10.</td><td>i. How will you calculate the net profit using percentage of completion method and completed contract method.
ii. Write short notes on three different time estimates.</td><td>BT-4</td></tr>
</table>

UNIT-4 QUALITY CONTROL AND SAFETY DURING CONSTRUCTION

PART-A

1	Define quality circle	BT-1
2	List the important items to be inspected during the construction	BT-1
3	List out the safety measures	BT-1
4	Define accident	BT-1
5	List the applications of quality circle	BT-1
6	Define injury frequency rate	BT-1
7	Distinguish the health and safety	BT-2
8	How will you interpret the quality control when chance cause and assignable cause exists in a process??	BT-2
9	Discuss the various causes of accident	BT-2
10	Summarize the sampling by attributes	BT-2
11	Classify the statistical sampling methods for quality control	BT-3
12	Examine how the quality control is important in a construction project	BT-3
13	Show the various charts used in statistical quality control	BT-3
14	Explain producer’s risk and consumer’s risk	BT-4
15	Explain the total quality control	BT-4
16	Differentiate sampling by attributes and sampling by variables	BT-4
17	Prepare a list of duties of quality circle?	BT-5
18	How will you prepare yourselves for the safety audit?	BT-5
19	What are the charts would you recommend for statistical quality control?	BT-6
20	How do you assess the injury frequency rate?	BT-6

PART-B

1	Describe the statistical quality control with sampling by attributes.	BT-1
2	Describe the total quality management and collect the details about the statistical quality control with sampling by variables.	BT-1
3	Describe the accident prevention programme and provide the general safety programme for a construction project	BT-1
4	Discuss the importance of quality and safety in construction	BT-2
5	Summarize the safety requirements of construction industry.	BT-2
6	Classify the different methods of statistical quality control	BT-3
7	Explain the problems associated with the safety of a construction site	BT -4
8	"Indian construction industry requires a comprehensive legislation for the quality, safety and welfare of its workman" Analyse the above statement and comment on it.	BT-4
9	Prepare a list of human factors which causes an accidents and mention the various causes of accident	BT-5
10	Summarize the following: (i) Statistical quality control by sampling (ii)Safety in construction	BT-6

UNIT-5 ORGANISATION AND USE OF PROJECT INFORMATION

PART-A

1	Name the PIMS components	BT-1
2	List the types of project information in respect of a construction project.	BT-1
3	Define relational database	BT-1
4	List out the information set for the progress of the project	BT-1
5	List out the advantages and disadvantages of centralized database management system	BT-1
6	Define decision support system	BT-1
7	Discuss the different stages in construction	BT-2
8	Summarize a few lines about the PIMS	BT-2
9	Describe the database management program	BT-2
10	Estimate how the centralized DBM is more advantages over stand-alone system.	BT-2
11	Examine the performance specifications	BT-3
12	Examine how the accuracy is necessary in information	BT-3
13	Show the importance of network code specifications	BT-3
14	Explain the integrated system design	BT-4
15	How will you analyze the network data model?	BT-4
16	Compare the organized information and unorganized information	BT-4
17	Prepare a list of other conceptual models of databases	BT-5
18	How will you generalize the information transfer and flow	BT-5

19	Why do you recommend the object oriented data representation?	BT-6
20	Compare the relational model of data bases and conceptual models of databases	BT-6

PART-B

1	Describe the database management system	BT-1
2	Describe in detail about the various sets of information collected in regard to construction project information	BT-1
3	List out the various functions of different managers and the software required for their requirements	BT-1
4	Discuss in detail about the computerized organization and use of information in a project.	BT-2
5	How will you interpret the database approach to contractor's account and explain it briefly. Mention its advantages and disadvantages also.	BT-2
6	Illustrate a frame based data storage hierarchy system adopted in construction industry.	BT-3
7	Illustrate a typical flow chart of an integrated accounting system for the generation of financial reports and explain them briefly.	BT-3
8	Explain the information transfer and flow in organizing project information.	BT-4
9	Design an organization chart for the medium size construction company and explain it briefly.	BT-5
10	Explain how will you assess the information in an organized manner using computers	BT-6