FINAL EXAMINATION

December 2023

P–16(SCM)
Syllabus 2022

STRATEGIC COST MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.
Working notes should form part of the respective answers.

Wherever considered necessary, candidates may make appropriate assumptions and clearly state them in the respective answer.

Answer to Question No.1 *in Section A is compulsory. Further answer* any five *from question no.* 2 *to question no.* 8.

Section-A (Compulsory)

1. Choose the correct option. 2×15=30

(i) Down time due to defect in quality is an example of

(A) Internal failure cost

(B) Prevention cost

(C) Appraisal cost

(D) External failure cost

(ii) Which one of the following important pillars of Strategic Cost Management determines the company's comparative position in the Industry in terms of performance?

(A) Cost drivers Analysis

(B) Value Chain Analysis

(C) Strategic positioning analysis

(D) Competitive Value Analysis

(iii) A production of ZON Ltd. has the capacity to produce either 4000 units of A, or 3500 units of B or 5000 units of C. Only one product can be made in a production period. The contributions per unit of A,B and C are ₹ 10, ₹ 11 and ₹ 8 respectively. The opportunity cost of A would be:

(A) ₹ 44,000

(B) ₹ 38,500

(C) ₹ 50,000

(D) ₹ 40,000

(iv) ROBINSON Ltd., a manufacturing company has a break-even point, when sales are ₹ 10 lakh and fixed costs of ₹ 4 lakh. To realize profits of ₹ 2 lakh from sales of 300000 units, the selling price per unit will be:

(A) ₹ 6

(B) ₹ 5

(C) ₹ 4

(D) ₹ 2

(v) AMON Ltd., plans to introduce a new product ZOS and is using Target cost approach. The selling price of product ZOS is set at ₹ 120 for each unit and sales revenue for the coming year is expected to be ₹ 9,60,000. The Co. requires a return of 15% on the coming year on its investment of ₹ 20 lakh. What is the Target Cost per unit for the coming year?

(A) ₹ 90.00

(B) ₹ 85.00

(C) ₹ 82.50

(D) ₹ 80.50

(vi) The highest negative opportunity cost value in an unused cell of a Transportation Matrix is chosen to improve the current solution because –

(A) It represents maximum possible cost reduction per unit.

(B) It ensures no violation of Rim Condition.

(C) It represents per unit cost improvement.

(D) Either one of the above

(vii) RRS, a manufacturer of large windows, is experiencing a bottleneck in its plant. Setup time at one of its workstations has been identified as the culprit. A manager has proposed a plan to reduce setup time at a cost of ₹ 7,20,000. The change will result in 800 additional windows. The selling price per window is ₹ 18,000, direct labour costs are ₹ 3,000 per window, and the cost of direct materials is ₹ 7,000 per window. Assume all units produced can be sold. The change will result in an increase in the throughput contribution of _____

(A) ₹ 64,00,000

(B) ₹ 88,00,000

(C) ₹ 56,80,000

(D) ₹ 1,44,00,000

(viii) An employee of ROB Ltd. took 200 minutes to complete the first set up on a new machine. Using a 90% incremental unit time learning model indicates that the second set up on the new machine is expected to take-

(A) 160 minutes

(B) 120 minutes

(C) 100 minutes

(D) 80 minutes

(ix) The drive-up window of a fast-food operation was being studied using simulation for a variety of operating characteristics. As part of the study, data was collected on Order Processing Time as given in the following table. Using the first two digits of the Random Numbers, determine the processing time that would be used to simulate the fifth sample.

Processing time (Minutes)	1	2	3	4
Probability	0.30	0.45	0.20	0.05

Customer	1	2	3	4	5	6	7	8	9
Random No	1048	2236	2413	4216	3757	1501	4657	4836	9309

(A) 2 minutes

(B) 4 minutes

(C) 1 minute

(D) 3 minutes

(x) A Co. producing output X and Y uses standard costing. The standard overhead contents of each product is:

X: ₹ 3 per unit and Y: ₹ 2.25 per unit.

The budgeted overhead is ₹ 860 and budgeted time is 3440 hours.

Actual Output:

X 200 units and Y 100 units.

Actual time: 3200 hours

Actual overhead: ₹ 875. Compute Overhead Volume variance.

(A) ₹ 35 (A)

(B) ₹ 35 (F)

(C) ₹ 25 (F)

(D) ₹ 15 (A)

(xi) The value of the game of

		Player B	
Player A		**B1**	**B2**
	A1	4	6
	A2	–10	10

is _____. Fill in the above.

(A) 4

(B) 6

(C) 8

(D) None of the above

(xii) The slack time of tail event of activity Z of a project is 2 days. If the Total Float and Free float of the activity Z are 10 days and 7 days respectively, the Independent float of activity Z will be:

(A) 5 days

(B) 6 days

(C) 7 days

(D) 2 days

(xiii) Which of the following has no relation to Business Intelligence?

(A) A set of business analytics solutions to retrieve, analyse and transform data into useful business sights.

(B) Visualisation Tools are primarily BI Tools.

(C) ABS Glue is a tool used for the purpose of Business Intelligence.

(D) Embedded Analytics is an important part of any Business Intelligence tool.

(xiv) Which of the following is/are the Financial analytics tools?

(A) Hypper Anna

(B) Jedox

(C) Net Suite

(D) All of the above

(xv) Which of the following is not a part of qualitative type of forecasting techniques?

(A) Survey Technique

(B) Barometric Technique

(C) Exponential Smoothing

(D) Delphi Technique

Section-B

(Answer *any five* questions out of seven questions given. Each question carries 14 marks)

14×5=70

2. RONTEX LTD., (Builders) has been offered a contract by Exyan Ltd. to build for it five special Guest Houses for use by top management. Each guest house will be an independent one. The contract will be for a period of one year and the offer price is ₹ 1 crore. In addition Exyan Ltd. will also provide 2 grounds of land free of cost for the purpose of construction. The Chief Accountant of Rontex Ltd. has prepared an estimate on the basis of which he has advised that the contract should not be accepted at the price offered. His estimate was as follows:-

	₹ In lakh
Land (3 Grounds at ₹ 20 lakh each)	60
Drawing and Design	7
Registration	10
Materials:	
Cement and Sand	6
Bricks and Tiles	4
Steel	10
Others (Including interior decoration)	10
Labour-Skilled	12
-Unskilled	8
Supervisor's Salary	5
Overheads General	12
Depreciation	6
Total Cost	150

The Accountant also provides the following information:

Land: The total requirement of land is 3 grounds costing ₹ 20 lacs per ground, Exyan Ltd. will provide 2 grounds free of cost.

Drawing and Design: These have already been prepared and 50% of the cost has already been incurred.

Materials:

(i) Cement and Sand are already in stock and are in regular use, if used for this contract, they have to be replaced at a cost of ₹ 8 lakh.

(ii) Bricks and Tiles represent purchases made several months before for a different contract. They could be sold readily for a net ₹ 5 lakh after meeting all further expensed.

(iii) Others: Materials worth ₹ 2 lakh relating to interior decoration are in stock for which no alternative use is expected in the near future. However, they can be sold for ₹ 1 lakh.

Labour:

(i) Skilled workers will be transferred to this project from another project. The project manager claimed that if the men were returned to him, he could have earned the company an additional ₹ 2 lakh in terms of profits.

(ii) The supervisor undertakes various tasks in the sites and his pay and continuity of employment will not be affected by the new contract. If the contract is taken, he will devote half of his time.

Overheads:

(i) The equipment that would be used on the contract was bought one year before for ₹ 30 lakh and is expected to last for five years. It can also be used on other contacts and the current replacement price will be ₹ 32 lakh and in a year's time it will be ₹ 25 lakh.

(ii) The general overheads includes both specific and absorbed overheads. If the contract is not undertaken, ₹ 4 lakh of the same can be avoided.

RONTEX LTD. has also on hand another project, which would not be executed if the contract from Exyan Ltd. were to be accepted. The estimated profit on that project is ₹ 10 lakh.

Required:

(a) Draw inference from the information given supra and identify the following.

(i) Relevant cost if the contract is accepted

(ii) Irrelevant cost if the contract is accepted

(b) Indicate with reasons as a cost and management accountant of the company whether it should accept the contract from Exyan Ltd. or not. 14

3. (a) Division A of DOXIN Ltd. has been given a budgeted target of selling 2,00,000 components TOM 22 it manufactures at a price which would fetch a return of 25% on the average assets employed by it. The following figures are relevant:

Fixed Overhead	₹ 4,00,000
Variable Cost	₹ 1 per unit
Average assets:	
Sales debtors	2,00,000
Stocks	6,00,000
Plant and other assets	4,00,000

However, the marketing department of the company finds out by a survey that the maximum number of TOM 22, the market can take, at the proposed price is only 1,40,000 units.

Fortunately, Division B is willing to purchase the balance 60,000 units. The Manager, Division A, is willing to sell to Division B at a concessional price of ₹ 4 per unit. But the Manager, Division B, is ready to pay ₹ 2.25 only per unit, as he feels he can himself make TOM 22 in his Division at that price.

Rather than sell to Division B at ₹ 2.25, the Manager, Division A, feels he will restrict the activity of his Division to the manufacture and sale of 1,40,000 components only. By this, he could reduce ₹ 80,0000 in stocks, ₹ 1,20,000 of plant and other assets and ₹ 40,000 in selling and administration expenses (fixed in nature).

Required:

As a cost and management accountant, you are:

(i) Asked to make comparative study of proposals of Divisional Manager and

(ii) Justify that selling 60,000 TOM 22 to Division B at ₹ 2.25 per unit would be in the interest of the organization. 7

(b) TECON LTD. (TL) a manufacturing company, sells its product at ₹ 1,200 per unit. Its competitors are likely to reduce the price by 20%.TL wants to respond aggressively by cutting price by 25% and expects that the present volume of 150000 units per annum will increase to 200000 units. TL wants to earn a 15% target profit on sales. Based on a detailed value engineering, the comparative position is given below:

Particulars	Existing (₹)	Target (₹)
Direct material cost per unit	425	400
Direct Labour cost per unit	65	60
Direct machinery cost per unit	80	70
Direct manufacturing expenses per unit	550	530
Manufacturing Overheads		
No. of orders (₹ 80 per order)	23000	22000
Testing hours (₹ 2 per hour)	45,00,000	35,00,000
Units reworked (₹ 100 per unit)	13000	14400

Manufacturing overheads are allocated using relevant cost drivers. Other operating costs per unit for the expected volume are estimated as follows:

Research and Design	₹ 60
Marketing and Customer Service	₹ 124
	₹ 184

Required:

(i) Determine target costs per unit and identify target costs for the proposed volume showing breakup of different elements.

(ii) Prepare target product profitability statement. 7

4. (a) ADF Bank operated for years under the assumption that profitability can be increased by increasing Rupee volumes. But that has not been the case. Cost analysis has revealed the following:-

Activity	Activity Cost (₹)	Activity Driver	Activity Capacity
Providing ATM Service	1,00,000	No. of transactions	2,00,000
Computer processing	10,00,000	No. of transactions	25,00,000
Issuing Statements	8,00,000	No. of statements	5,00,000
Customer inquiries	3,60,000	Telephone minutes	6,00,000

The following annual information on three products was also made available:

	Checking Accounts	Personal Loans	Gold Visa
Units of Product	30,000	5,000	10,000
ATM Transactions	1,80,000	0	20,000
Computer transactions	20,00,000	2,00,000	3,00,000
Number of statements	3,00,000	50,000	1,50,000
Telephone minutes	3,50,000	90,000	1,60,000

Required:

(i) Calculate rates for each activity.

(ii) Using the rates computed in requirement (i), assess the cost of each product. 7

(b) "Value Analysis is a methodical approach to sharpening the efficiency and effectiveness of any process" – In this context, summarise the phases of Value Analysis. (*Any five*) 7

5. DOTSON Ltd. has a manufacturing division which makes a product to which the following details relate:

	Per unit (₹)
Direct Material: 5 kg at ₹ 20	100
Direct labour: 12 hours at ₹ 20	240
Variable overheads: 12 hours at ₹ 10	120

Relevant fixed overheads are based at ₹ 1,00,000 per month and planned output is 2,000 units per month. The selling price is ₹ 550 per unit. During a recent month, when output was 1,800 units, the following actual cost were incurred.

	₹
Direct materials (8,500 kg)	1,72,000
Direct labour (20,000 hours)	4,20,000
Variable overhead	2,20,000
Fixed overhead	98,000
	9,10,000
Profit	40,000
Sales Value	9,50,000

Required:

(a) Analyse the variances which occurred during the month.

(b) Reconcile the actual profit with standard profit, showing the causes of differences. 14

6. (a) MR TUSHAR, production supervisor is considering how he should assign five jobs that are to be performed, to the mechanists working under him. He wants to assign the jobs to the mechanists in such a manner that the aggregate cost to perform the jobs is the least. He has following information about the wages paid to the mechanists for performing these jobs.

	Jobs				
Mechanist	**1**	**2**	**3**	**4**	**5**
A	10	3	3	2	8
B	9	7	8	2	7
C	7	5	6	2	4
D	3	5	8	2	4
E	9	10	9	6	10

Required:

Analyse and assign the jobs to the mechanists so that the aggregate cost is the least. 7

(b) Sugam Travelling Agency has to deal with a number of clients. The time taken by the officer of the agency to deal with clients and the arrival pattern of clients follow the distribution given below:

Time to deal with the clients:

Minutes	Probability
2	0.05
4	0.10
6	0.15
10	0.30
14	0.25
20	0.10
30	0.05

Time elapsing between arrivals of clients:

Minutes	Probability
1	0.20
8	0.40
15	0.30
25	0.10

Required:

(i) Simulate the arrival and serving of 10 clients by taking the following Random numbers.

	Random Numbers for:									
Arrival pattern	02	48	43	75	89	36	96	47	36	61
Serving pattern	60	73	61	35	28	16	80	46	60	11

(ii) Indicate which of the clients will wait for how many minutes.

(iii) Assess probability of time office being idle, taking the starting time as 10 a.m. 7

7. (a) An engineering firm is tendering for a contract to supply a steel fabrication with target duration of 46 days. The tasks have been analysed as follows:

Activity	Duration (Days)
1-2	10
1-3	12
1-4	10
2-4	9
2-5	13
3-6	17
4-6	12
5-6	14

The firm is awarded the contract and starts work with all activities on their earliest start times but after work on the 15th day there is a fire which destroys all the work -in-progress on task 2-4, 2-5 and 3-6. Fortunately, no other completed tasks are affected but it is estimated that task 5-6 will now need 20 days. The project manager feels that due to fire there will be variability in the task times and has made some uncertainty estimates which are shown as task standard deviation in days:

Activity	Standard Deviation (Days)
2-4	0.82
2-5	1.33
5-6	0.47
4-6	2.17
3-6	1.33

(i) Prepare a PERT network as originally envisaged.

(ii) Assess the new expected project duration and identify the critical path through the remaining activities after the fire.

(iii) Evalulate the probability of the project being completed on time after the fire.

[*Given area between* $Z = 0$ *and* $Z = -1.42$ *is* 0.4222] 7

(b) Heavy India Shipbuilders produce a special type of boat to be used by a shipping company. A 90% learning curve is expected to apply to production of this type of boat. It is agreed that boats will be supplied at variable cost plus 20%. The variable cost of the first boat to be produced has been estimated as follows:

	₹
Materials	8,000
Labour (1000 hrs @ ₹ 4 per hour)	4,000
Variable Overhead (200% of direct labour)	8,000

Order will be for a minimum of 2 boats.

(i) Find the average selling price per boat if the order is for 4 boats and 8 boats.

(ii) Also ascertain the separate selling price for 3rd and 4th boats. 7

8. (a) ZOXIN Ltd., a manufacturing company is planning to market a new model of a doll. Rather than setting the selling price of the doll based only on production cost estimation, management polls the retailers of the doll to see how many dolls they will buy for various prices. From this survey, it is determined that the unit demand function is $x = 1500 - 75p$, and the cost function is given by $C = 4x + 1400$, for the doll, where p is the price per unit and x is the number of units demanded.

Required:

(i) Evaluate how many number of dolls are sold to the retailers to maximize the profit of the company.

(ii) Identify the price the company should charge to retailers in order to obtain maximum profit.

(iii) Assess the maximum profit available to ZOXIN Ltd. 7

(b) The Sales of ZINC in a plant of KHT Ltd. for the years 2014 to 2022 are given below:

Year	2014	2016	2018	2020	2022
Sales of ZINC (in Million ₹)	36	42	46	54	32

Required:

(i) Using the method of least squares, analyse a straight line trend value.

(ii) Assess the sale (in Million ₹) of ZINC for the year 2019 and 2025. 7

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SUGGESTED ANSWERS

SECTION – A

1.

(i) (A)

(ii) (C)

(iii) (D)

(iv) (B)

(v) (C)

(vi) (A)

(vii) (B)

(viii) (A)

(ix) (A)

(x) (A)

(xi) (A)

(xii) (A)

(xiii) (C)

(xiv) (D)

(xv) (C)

SECTION – B

2.

(a)

(i) Relevant cost if the contract is accepted ₹ 93 lakh.

(ii) Irrelevant cost if the contract is accepted ₹ 18 lakh.

(b) Decision:

Since the offer price of contract is ₹ 1 crore and its total relevant cost is ₹ 93 Lakh these figures clearly shows that the offer should be accepted.

3. (a)

Sales price per unit		₹ 4.50
	Transfer to Division Band sale to outside parties	Sale to outside parties only
Sales (units)	200000	140000
	₹	₹
Sales value (140000 units) (60000 units)	630000 135000	630000 Nil
	765000	630000
Less: Variable cost	200000	140000
Contribution	565000	490000
Less: Fixed overhead	400000	360000
Net profit	165000	130000
Average assets employed	1200,000	280000
Return on investment	13.75%	46.43%

Justification: If the component is transferred to Division B as well as sold to outside parties, it is more profitable as the contribution and net profit are more than the existing proposal. Therefore selling the components to Division B at D 2.25 per unit is in the overall interest of the company is justified.

3. (b)

(i) Target Cost per unit ₹ 765

The breakup of the target cost of ₹ 765 per unit is as follows:

	(₹)
Direct Materials	400
Direct Labour	60
Direct Machinery Costs	70
Direct Manufacturing Costs	530
Add : Manufacturing Overheads	51
Other Operating Costs	184
Full Product Costs	765

(ii) **Target Product Profitability**

Particulars		**Per Unit (₹)**	**Total for 200000 Unit (₹)**
1.	Sales	900	180000000
2.	Cost of Goods Sold	581	116200000
3.	Gross Margin (1 – 2)	319	63800000
4.	Operating costs	184	36800000
5.	Operating Profit (3 – 4)	135	27000000

4. (a)

Rates for each Activity

Activity	**Activity Rate (₹)**
Providing ATM Service	0.50
Computer Processing	0.40
Issuing Statements	1.60
Customer Inquiries	0.60

Cost of each Product

	Checking Accounts (₹)	Personal Loans (₹)	Gold VISA (₹)
Cost of each Product	52.67	42.80	46.60

4. (b)

The Phases of Value Analysis are summarized as follows:

(1) **Origination:** The phase of origination starts with the identification of a project to undertake value analysis. After selecting the project, a project team consisting of experts from various fields and departments is constituted.

(2) **Information:** The second phase is that of collecting relevant information. In this phase, the relevant facts relating to specifications, drawings, methods, materials, etc. are collected. Costs are, also, ascertained for each of the elements that are being studied.

(3) **Functional Analysis:** Then follows the important phase of functional analysis. After familiarisation with the relevant facts & figures, a functional analysis is carried out to determine the functions and uses of the product and its components. The cost and importance of each function are identified. A value index is computed on the basis of cost benefit ratio for each of the functions),

(4) **Innovation:** This is the creative phase concerned with the generation of new alternatives to replace or remove the existing ones. The objective is to produce ideas and to formulate alternative means and methods for accomplishing the essential functions and improving the value of the element under consideration.

(5) **Evaluation:** During the stage of evaluation, each and every alternative is analysed and the most promising alternatives are selected. These alternatives are further examined for economic and technical feasibility. The alternatives finally selected must be capable of performing the desired functions satisfactorily.

(6) **Choice:** In this phase, the decision makers choose the best of alternatives. The programs and action plans are then developed to implement the chosen alternative.

(7) **Implementation:** The chosen alternative is put to the actual use with the help of the programs and action plans. The progress of implementation is continuously monitored and followed up to ensure that the desired results are achieved.

5.

(a) Computation of Variance

(i)	Material Price Variance =	2000 (Adv)
(ii)	Material Usage Variance =	10000 (FAV)
(iii)	Wage Usage Variance =	20000 (Adv)
(iv)	Wage Efficiency Variance =	32000 (Fav)
(v)	Variable Overhead expenditure Variance =	20000 (Adv)
(vi)	Variable overhead efficiency Variance =	16000 (Fav)
(vii)	Fixed overhead expenditure Variance =	2000 (Fav)
(viii)	Fixed overhead Capacity Variance =	16667 (Adv)
(ix)	Fixed overhead efficiency Variance =	6667 (Fav)
(x)	Sales Margin price Variance =	40000 (Adv)
(xi)	Sales Margin Volume variance =	8000 (Adv)

(b) Reconciliation of Profit.

	₹.
Budgeted Profit	80000
Add: Favorable Variances:	66667
Less: Adverse variances:	(106667)
Actual Profit (for the period):	40000

6. (a)

The given problem is a standard minimization problem.

Subtracting minimum element of each row from all the elements of that now, the given problem reduces to

JOBS					
Mechanist	1	2	3	4	5
A	8	1	1	0	6
B	7	5	6	0	5
C	5	3	4	0	2
D	1	3	6	0	2
E	3	4	3	0	4

Subtract the minimum element of each column from all the elements of that column. Draw the minimum number of lines horizontal or vertical so as to cover all zeros.

	JOBS				
Mechanist	1	2	3	4	5
A	7	0	0	0	4
B	6	4	5	0	3
C	4	2	3	0	0
D	0	2	5	0	0
E	2	3	2	0	2

Since the minimum number of lines covering all zeros is equal to 4 which is less than the number of columns/ row (=5), the above table will not provide optimal solution. Subtract the minimum uncovered element (=2) from all uncovered elements and add to the elements lying on the intersection of two lines, we get the following matrix.

	JOBS				
Mechanist	1	2	3	4	5
A	7	0	0	2	6
B	4	2	3	0	3
C	2	0	1	0	0
D	0	2	5	2	2
E	0	1	0	0	2

Since the minimum number of horizontal and vertical lines to cover all zeros is equal to five which is equal to the order of the matrix, the above table will give the optimal solution. The optimal assignment is made below.

	JOBS				
Mechanist	1	2	3	4	5
A	7	$\boxed{0}$	~~0~~	2	6
B	4	2	3	$\boxed{0}$	3
C	2	~~0~~	1	~~0~~	$\boxed{0}$
D	$\boxed{0}$	2	5	2	2
E	~~0~~	1	$\boxed{0}$	~~0~~	2

The optimal assignment is given below:

Mechanist	Job	Wages (₹)
A	2	3
B	4	2
C	5	4
D	1	3
E	3	9
		21

The total least cost associated with the optimal mechanist-job assignment = 21

6. (b)
(i/ ii/ iii)

Simulation Worksheet: (Starting Time at 10 AM)

Client No.	Random Nos. for arrival	Time between arrivals	Arrival time at (hours)	Service beginning (hours)	Random Nos. for services (minutes)	Service time (minutes)	Service end (hours)	Time client waiting (minutes)	Time Office idle (minutes)
1.	2	1	10.01	10.01	60	14	10.15	--	1
2.	48	8	10.09	10.15	73	14	10.29	6	—
3.	43	8	10.17	10.29	61	14	10.43	12	—
4.	75	15	10.32	10.43	35	10	10.53	11	—
5.	89	15	10.47	10.53	28	6	10.59	6	—
6.	36	8	10.55	10.59	16	6	11.05	4	—
7.	96	25	11.20	11.20	80	14	11.34	—	15
8.	47	8	11.28	11.34	46	10	11.44	6	—
9.	36	8	11.36	11.44	60	14	11.58	8	—
10.	61	15	11.51	11.58	11	4	12.02	7	—
								60	**16**

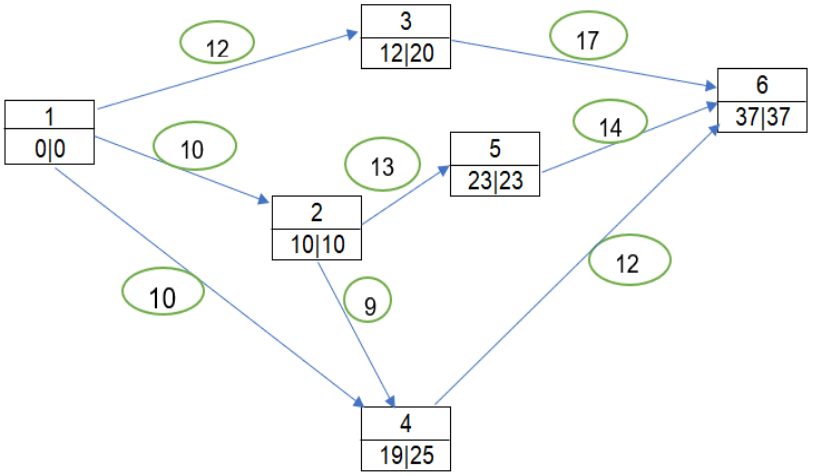
From the table above, it may be seen that the simulation study has been carried out on the queue system for duration of 122 minutes (10 AM to 12.02 PM). During this time, TIME OFFICE of the agency was idle for a total for 16 minutes.

Probability of the time office being idle 13.11%

7. (a)

(i)

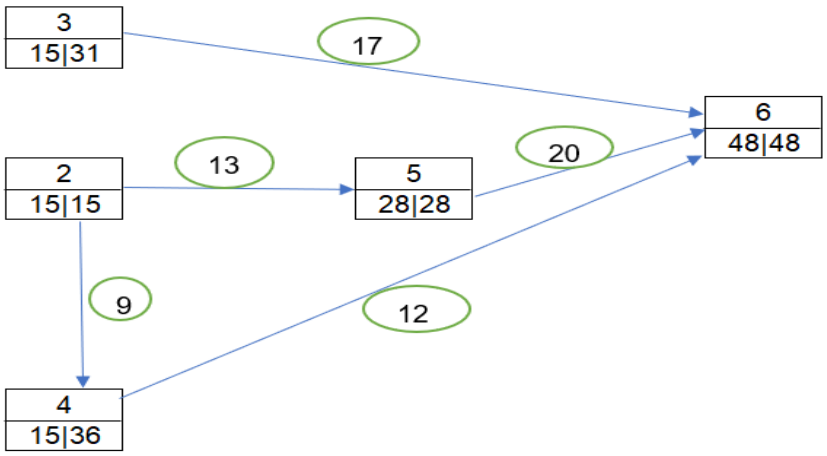
Network Diagram before Fire



Activities 1-2, 1-3 and 1-4 had already been completed before the fire. After fire, 15 days are over and 31 days (46 days-15 days) remain with the following outstanding activities:

Activity	Duration (Days)
2-4	**9**
2-5	**13**
3-6	**17**
4-6	**12**
5-6	**20**

Network Diagram after Fire



(ii) New Expected Project Duration is 48 days and Revised Critical Path after fire is 2-5-6.

(iii) Standard Deviation of the Project = 1.41

Using Z value, we have Z = -1.42

Using area under standard normal curve, the probability of achieving 46 days is = 8%

7. (b)

Selling Price

	For 4 Boats (₹)	**For 8 Boats (₹)**
Selling Price / Boat	21,264	20,097.63

Price for 3rd and 4th Boats:

	Amount (₹)
Selling Price / Boat	19,968

8. (a)

(i) Dolls = 600

(ii) Price = ₹ 12

(iii) Profit (Maximum) = ₹ 3400

8. (b)

(i) Straight Line Trend $Y_e = 42 + 0.20\ \chi$

(ii) **Sales (₹ in Million) for:**

Year 2019 = ₹ 42.20 Million

Year 2025 = ₹ 43.40 Million