

MN3ACQ

Q3b) Calculate all Balance Sheet Ratios from the following information: (7)

In the books of Beta Ltd. Balance sheet as on 31 / 3 / 2013

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Equity share capital ( Rs.10 each )	140000	Land	150000
10% Preference share capital	150000	Building	100000
Reserves	50000	Machinery	50000
12% Debentures	200000	Investment	260000
Creditors	55000	Stock	30000
Bills Payable	40000	Debtors	13000
		Discount on issue	32000
	<b>635000</b>		<b>635000</b>

Or

Q3 Rearrange the following information into Vertical form and calculate the following Ratios: (15)

- Gross profit ratio
- Net profit after tax ratio
- Operating profit ratio
- Operating ratio
- Stock turnover ratio
- Interest coverage ratio

Trading and Profit and Loss account for the year ended 31<sup>st</sup> March 2013

Particulars	Rs.	Particulars	Rs.
Opening stock	80000	Sales	750000
Purchases	39000	Closing stock	30000
Wages	15000	Commission	12000
Depreciation on factory building	4000		
Electricity expenses	10000		
Rent	22000		
Exhibition expenses	7000		
Interest on debentures	12000		
Loss on sale of investment	30000		
Tax	20000		
Net profit	553000		
	<b>792000</b>		<b>792000</b>

P.T.O.



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Time 2 hours

Total Marks:60

N.B.1) All questions are compulsory.

2) Figure to the right indicates marks.

Q:1(A) Define the following terms. [6]

- i. Infeasibility in Graphical method
- ii. Contingent Annuity
- iii. Objective function

(B) Write application of LPP. [5]

(C) A firm makes two products P1 and P2 and has production capacity of 18 tonnes per day. P1 & P2 require same production capacity. The firm must supply at least 4 tonne of P1 & 6 tonne of P2 per day. Each tonne of P1 & P2 requires 60 hrs. of machine work each. Maximum machine hours available are 720. Profit per tonne for P1 is Rs. 160 & for P2 is Rs. 240. Formulate as LPP. [4]

Q.2 (A) Solve the following LPP graphically. [5]

$$\text{Max } Z = 8x + 16y$$

Subject to

$$x + y \leq 200$$

$$y \leq 125$$

$$3x + 6y \leq 900$$

$$x, y \geq 0$$

(B) A company has three factories F1, F2, F3 with production capacities of 11, 13 and 19 units (in thousands). It has four warehouses W1, W2, W3 and W4 with demands of 6, 10, 12 and 15 units (in thousands). Unit cost of transportation is given from each factory to each warehouse.

Cost in Rs.

To \ From	W1	W2	W3	W4
F1	42	32	50	26
F2	34	36	28	46
F3	64	54	36	82

Find IFS by using North-west corner method. Also find transportation cost. [5]

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(C) A machine costing Rs. 2,00,000 has an estimated working life of 10 years. Company is planning to set up a sinking fund to provide for replacement of the machine after 10 yrs. The estimated cost of the machine after 10 years is Rs. 2,70,000. The scrap value of the present machine will be Rs.20,000. Find the amount to be set aside at the end of each year if interest rate is 8% p.a. compounded annually. [5]

OR

Q.2(A) Solve the following LPP graphically. [5]

$$\text{Min } Z = 6x + 3y$$

Subject to

$$3x + 5y \geq 50$$

$$4x + 3y \geq 60$$

$$x, y \geq 0$$

(B) Supply, demand and unit transportation cost data is given. Find IFS by VAM method. Also find transportation cost. [5]

To \ From	W	X	Y	Supply
A	16	24	24	152
B	48	72	48	164
C	24	48	72	154
<b>Demand</b>	144	204	82	

(C) Find present value of ordinary annuity of Rs. 10,000 paid every year for 15 years at interest rate of 8% p.a. compounded yearly. [5]

Q.3 (A) In a factory there are 5 employees and 5 jobs are to be done on a one to one basis. Time required (in Minutes) is given for each Employee-Job combination. Find optimal Assignment of Employees & jobs to minimize total time. [8]

Time(in Minutes)

Job \ Emp.	A	B	C	D	E
I	160	130	175	190	200
II	135	120	130	160	175
III	140	110	155	170	185
IV	50	50	80	80	110
V	55	35	70	80	105

P.T.O



(B) Solve the following LPP by Simplex method.

[7]

$$\text{Max } Z = 100x + 80y$$

Subject to

$$6x + 4y \leq 7000$$

$$2x + 4y \leq 4000$$

$$x, y \geq 0$$

OR

Q.3 (A) In the modification of a plant layout of a factory four new machines M1, M2, M3 and M4 are to be installed in machine shop. There are five vacant places A, B, C, D and E which are suitable for the installation. Because of extra large size, M2 cannot be placed at C and M3 cannot be placed at A. The cost of installing machine location wise in hundred rupees is as follows:

[8]

	A	B	C	D	E
M1	9	11	15	10	11
M2	12	9	X	10	9
M3	X	11	14	11	7
M4	14	8	12	7	8

Find optimal assignment.

(B) Solve the following LPP by using Simplex method.

[7]

$$\text{Max } Z = 2000x + 1800y$$

Subject to

$$x + y \leq 10$$

$$1000x + 800y \leq 9000$$

$$x, y \geq 0$$

P.T.O



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**Q.4 (A)** Consider the given IFS and answer the following

[8]

To \ From	P	Q	R	S	Supply
A	38 5	60	100	24 2	7
B	140	60	80 7	120 3	10
C	80	20 8	120	40 10	18
<b>Demand</b>	5	8	7	15	

- Is the above solution feasible?
- Is the solution optimal? If not find optimal solution.
- Is there any alternate solution.

**(B)** An individual has two investment options to invest a sum of Rs.10,000. Option one gives 9% interest compounded half yearly. Option two gives 9.5% interest compounded yearly. Compare the returns on both the options at the end of 3 years and decide which option is better.

[7]

**OR**

**Q.4 (A)** From three warehouse W1, W2 and W3 the stocks are to be transported to four markets M1, M2, M3 and M4. The supplies from warehouses are 300, 200 and 250 tons respectively where as the requirements of markets are 325, 175, 100, 150 tons respectively. The cost matrix and a solution to the problem are given in the following table.

[8]

To \ From	M1	M2	M3	M4
W1	10 300	10	16	20
W2	140	60	80 7	120 3
W3	80	20 8	120	40 10
<b>Demand</b>	5	8	7	5

**Q.4 (B)** Which of the following investment options gives a higher yield?

('yield' means effective rate of return)

[7]

- 8% compounded quarterly
- 8.2% compounded half yearly