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# B.Com SEM I 17-18 Question Papers

#### Roll No: Total No. of Questions: 06

Total No. of pages: 03

### **B.Com Semester End Examination**

Financial Accounting I Semester I OCt 2017

**Duration: 02 Hrs.** 

Maximum Marks: 80 Marks

Instructions: 1) Question No. 1-Q. No. 6 is compulsory Question.
 2) Figures to the right indicate maximum marks allotted.
 3) Provide sufficient margin space in the answer-book for recording marks.
 4) Enter the appropriate main & sub-question numbers in the answer-book.
 5) Working Note is a part of solution.

Q1. On 1<sup>st</sup> July, 2013, Wise Ltd. purchased a machine for Rs. 1,10,000 and spent Rs. 6,000 on its installation. The expected life of the machine is 4 years at the end of which the estimated scrap value will be Rs. 16,000. Desiring to replace the machine on the expiry of its life, the company established a Sinking fund. Investment are expected to realize 5% interest per annum. On 30<sup>th</sup> June 2017, the machine was sold off as scrap for Rs. 18,000 and the investment were realized at 5% less than the book value. On 1<sup>st</sup> July, 2017 a new machine is installed at a cost of Rs. 1,25,000. Sinking Fund table shows that Re. 0.2320 invested each year will produce Re. 1 at the end of 4year at 5% p.a.

Show the Machinery Account, Sinking Fund account and Sinking Fund Investment account. (20 marks)

Q2. The following is the balance Sheet of ABC Ltd. as on 31/12/2016.

| as on 31.12.2016              |            |                      |           |  |
|-------------------------------|------------|----------------------|-----------|--|
| Liabilities                   | Amount     | Assets               | Amount    |  |
| Equity Shares of Rs. 10 each  | 7,00,000   | Bank Balance         | 6,00,000  |  |
| 7.5% Preference Share Capital | 3,00,000   | Fixed Assets         | 19,00,000 |  |
| Profit and Loss Account       | 2,50,000   | Other Current Assets | 5,00,000  |  |
| General Reserve               | 1,50,000   |                      |           |  |
| Securities Premium            | 1,10,000   |                      |           |  |
| Dividend Equalization Reserve | 90,000     |                      |           |  |
| 11.5% Debenture               | 4,00,000   |                      |           |  |
| Bank Loan                     | 4,00,000   |                      |           |  |
| Creditors                     | 6,00,000   |                      |           |  |
|                               | 30,00,0000 |                      | 30,00,000 |  |

## **Balance Sheet**

The company decided to buyback maximum no. of Equity shares at a maximum price. All the legal requirement to be fulfilled.

Pass journal entries and prepare Balance Sheet under schedule III.

(20 marks)

Q3. The following is the Summarized Balance Sheet of XYZ Ltd.

#### Balance Sheet of XYZ Ltd As on 31<sup>st</sup> Dec. 2016

|                                    | Amount          | Assets  | Amount          |
|------------------------------------|-----------------|---|-----------------|
| Liabilities                        | Amount          | Cash in Hand and Bank   | 1,00,000        |
| Paid-up Share Capital:             |                 | and the second state was also been as a second state of the |                 |
| 50,000 Equity share Capital of Rs. | 5,00,000        | Fixed Assets  | 5,00,000        |
| 10 each fully paid                 | 1,00,000        | Current Assets  | 3,10,000        |
| 1,000, 10% Redeemable              | 1,00,000        |   | , ,,,,,,,,      |
| Preference Shares of Rs. 100 each  |                 |   |                 |
| fully paid                         |                 |   |                 |
| Securities Premium                 | 25,000          |   |                 |
| Profit and Loss account            | 55,000          |   |                 |
| General Reserve                    | 70,000          |   |                 |
| Bank Loan                          | 1,50,000        |   |                 |
|                                    | <u>9,00,000</u> |   | <u>9,00,000</u> |

The redeemable preference shares were redeemed on the following basis:

- 1. Further 5,000 equity shares were issued at a premium of 15%.
- 2. Expenses for fresh issue of shares Rs. 2,000.
- 3. Preference shares were redeemed at a premium of 10% and securities premium account was utilized in full for this purpose.

Show journal entries including those relating to cash and Summarized Balance sheet after redemption. (20 marks)

Q4. M/s Blue Chip Ltd. issued 5,000 Equity Shares of Rs. 100 each at a premium of Rs. 25 per share. On 1<sup>st</sup> January 2016, the company received 12,000 applications of which 2,000 applications were totally rejected and their amount was refunded on 1<sup>st</sup> February 2016, when remaining applicants were allotted shares on pro-rata basis. The amount of shares receivable is on application Rs. 20, on allotment Rs. 55 (including premium), on 1<sup>st</sup> Call Rs. 25 and on 2<sup>nd</sup> call Rs. 25.

Allotment money was received in full on 15<sup>th</sup> February 2016. First Call was made on 15<sup>th</sup> May, 2016 and Second call is made on 15<sup>th</sup> June and received on 1st June & 1<sup>st</sup> July, 2016 respectively, except 25 shares hold by Mr. Azad failed to pay first call and second call amount and Mr. Vijay holding 50 shares failed to pay second call.

Both the shares were forfeited after second call and on 14<sup>th</sup> August, 2016 total number of forfeited shares are reissued to Mrs. Puja for Rs 90 each share.

Pass journal entries and show cash book in the above company name. (20 marks)

Q5. Bhavana who commenced business as a retail trader on 1.1.2015 has not kept proper records of his transactions for the year ended 31.12.2015. She however has kept a cash diary from which he has extracted the following.

| De cial Account                                |        |                     |               |
|--|--------|---------------------|---------------|
| Particular                                     | Amount | Particular          | Amount        |
| Amount withdrawn from<br>Bank on various dates | 3,520  | Postage expenses    | Amount<br>720 |
|  |        | Conveyance expenses | 2,400         |

Cash Account

| License f | <i>`ees</i>    | 60    |
|-----------|----------------|-------|
| Miscellar | neous expenses | 220   |
| Balanced  | C/d            | 120   |
| 3,520     |                | 3,520 |

An analysis of her bank statements reveals the following deposits and withdrawals:

**Deposits:** Capital introduced Rs. 50,000; Cash sales Rs. 2,40,000' collection from Debtors Rs. 20,000.

Withdrawals: Cash withdrawals for petty expenses Rs. 3,520; Rent paid Rs. 2,200; Electricity bills paid Rs. 660; payments to suppliers Rs. 1,80,000; Insurance Rs. 12,000; Salaries Rs. 3,600; Furniture & Fitting purchased Rs. 24,000; advanced income tax paid Rs. 12,000; Typewriter purchased Rs. 2,000; Personal drawing Rs. 36,000.

You also ascertain the following additional information:

- 1. All fixed assets were purchased in each January.
- 2. Furniture and Fitting is to be depreciated at 10% and Typewriter at 15%.
- 3. Rent and Electricity payable to the landlord are in arrears for December 2015.
- 4. At the end of the year, debtors were Rs. 5,000, Creditors Rs. 2,700 and Stock Rs. 39,000

You are required to prepare:

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- 1. Bank account and ascertain the closing balance.
- 2. Trading and Profit & Loss account for the year ended 31.12.2015
- 3. Balance Sheet as that date.

(20 marks)

Q6. Answer the following question. (Any 5)

- 1. What is Single Entry Book-keeping System and its advantage?
- 2. What do you mean by 'Calls-in-advanced' and 'Calls-in-Arrear'? What are the provisions of Companies Act in this regards?
- 3. Discuss the logic behind the creation of Capital Redemption Reserve.
- 4. What is Depreciation and Explain any three different types?
- 5. What are the factors to be taken into consideration in selection a depreciation method
- 6. What is Insurance Policy Method of Depreciation and its three advantages?
- 7. What do you mean by 'Buy-Back of Shares? State the conditions to be satisfied for buy back of shares.

#### (4\*5=20 marks)

Total No: of Questions: 06

Total No: of pages: 02

#### B.Com Semester End Examination <u>Principles of Insurance</u>

Semester I

Duration: 02 Hrs.

Maximum Marks: 80 Marks

#### Instructions:

1. All questions are compulsory, however internal choice is available.

2. Answer sub-questions, Question No.1 & Question No. 2 in not more than 100 words each.

- 3. Answer questions, from Question No. 3 to Question No. 6 each in not more than 400 words.
- 4. Figures to the right indicate full marks allotted to each question.

#### Q.1 Answer the following (ANY FOUR)

- a) Reinsurance
- b) Objectives of IRDA
- c) Distinguish between insurance & wagering agreement (Any four points)
- d) Significance of insurance
- e) Content of life insurance policy
- f) Pradhan mantri jeevan jyoti yojana 2015

#### Q.2 Answer the following (ANY FOUR)

- a) Objectives of life insurance
- b) Distinguish between life insurance & general insurance (Any four points)
- c) Types of marine insurance policy
- d) Pradhan mantri suraksha bhima yojana 2015
- e) Travel insurance policy.
- f) Need of general insurance business in India
- Q.3 X) Explain the various types of risk in insurance.

OR

Y) What is risk management? Explain the various methods of handling risk (12)

P.T.O.

(12)

(4x4=16)

(4x4=16)

|     | 2  |      |
|-----|--|------|
| Q.4 | X) Explain the role of insurance in economic development.                            | (12) |
|     | OR   |      |
|     | Y) Explain the various principles of insurance.                                      | (12) |
| Q.5 | X) Explain the procedure involved issuing life insurance policy                      | (12) |
|     | OR   |      |
| Y   | Y) What is life insurance? Explain the various types of life insurance policies.     | (12) |
| Q.6 | X) What do you mean by motor vehicle insurance? Explain its types.                   | (12) |
|     | OR   | . Q  |
| Y)  | What is fire insurance policy? Explain the various types of fire insurance policies. | (12) |
|     |  |      |

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Total No: of Questions: 06

Duration: 2Hrs

#### Total No: of pages: 01

## B. Com Repeat Semester End Examination

## <u> Managerial Economics - I</u>

Semester No: I

| Maximum | Marks: | 80 |
|---------|--------|----|
|         |        |    |

Instructions: 1) All questions are compulsory 2) Figures to the right indicate maximum marks. 3) Start each new question in a fresh page.

#### Q. 1) Answer any FOUR questions (4 X 4 = 16 Marks)a) What are the characteristics Managerial Economics? b) What are the objectives of a firm? c) What are the role and responsibility of a managerial economist? \* d) What are the exceptions to the law of demand? e) Explain different types of elasticity of demand. f) What is demand estimation and forecasting and what are its objectives? Q. 2) Answer any FOUR questions (4 X 4 = 16 Marks)a) Explain the production function. b) What are the properties of isoquant? c) Explain relationship between TP, AP and MP. d) What is Optimality? e) Explain costs of a multi-product firm. f) Explain the economies of scope. Q. 3) Answer any ONE questions (1 X 12 = 12 Marks) a) Explain the law of supply. (or) b) Explain the Law of Demand? Q. 4) Answer any ONE questions (1 X 12 = 12 Marks) b) Explain change in demand vs. Variation in demand? (or) b) Explain change in supply vs. variation in supply. Q. 5) Answer any ONE questions (1 X 12 = 12 Marks) a) Explain the law of variable proportions. (or) b) Explain the law of Returns to scale. Q. 6) Answer any ONE questions (1 X 12 = 12 Marks) a) What are reasons for economies and diseconomies of scale? (or) b) Explain the long run cost functions and cost curves.

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Total No: of Questions: 6

Total No: of pages: 1

## 3 B.Com Semester End Examination

## **General Management**

| Semester: 1   |                     |
|---|---------------------|
| Duration: 2 Hrs. Maxim  | um Marks: 80        |
| Instructions 1) All questions are compulsory.   |                     |
| 2) Figures to the right indicate maximum marks.   |                     |
| 3) Start each new question in a fresh page.   |                     |
| Q1.AnswerANY FOUR of the following  | (16)                |
| <ul> <li>a) Management v/s Administration</li> <li>b) Nature of Management</li> <li>c) Purchase department</li> </ul>   | л <sup>у</sup><br>У |
| <ul><li>d) Scientific approach</li><li>e) Human Relations approach</li><li>f) Japanese style of management</li></ul>  |                     |
| <ul> <li>Q2.AnswerANY FOUR of the following</li> <li>a) Creativity in decision making</li> <li>b) Difficulty in effective decision making</li> <li>c) Strategic v/s Routine decisions</li> <li>d) Logistics management</li> <li>e) Types of Disasters</li> <li>f) Types of Stress</li> </ul>  | (16)                |
| Q.3 A) "Management is getting the work done through others" Explain.<br>OR  | (12)                |
| Q.3 B) What do you mean by functional areas of management? Explain the differen areas of management   | t functional (12)   |
| Q.4 A) Explain the contributions & limitations of human relations approach to mana thought • OR   | (12)                |
| Q.4 B) Explain the contribution of behavioral approach to management thought  |                     |
|   | (12)                |
| Q.5 A) What is decision making? Explain its advantages (12)   |                     |
| OR<br>O 5 P) Events in the state of the state o |                     |
| Q.5 B) Explain the various steps in decision making process   | (12)                |
| Q.6 A) What is stress? Explain the measures which can be taken for stress control   | (12)                |
| OR  |                     |

Q.6 B) What is event management? Explain its benefits

(12)

Duration: 2 Hrs.

**Total No: of Questions: 4** 

Total No: of pages: 4

## **B.Com Semester End Repeat Examination**

Mathematical Techniques-I

#### Semester No:I

Maximum Marks: 80

Instructions: 1) All Questions are Compulsory.

2) Figures to right indicate marks.

- 3) Start each new question on a fresh page.
- 4) Use of programmable calculators are not allowed.

Q.1 Attempt the following:

a)Find n, If  $5({}^{n}P_{4}) = 36({}^{n+1}P_{4})$ 

b) Find whether the following statement is tautology, contradiction or neither

 $(p \rightarrow q) \rightarrow [(q \rightarrow r) \rightarrow (p \rightarrow r)]$ 

c) Write down binomial expansion of  $(1 - x)^5$ 

d) If  $X = \{1, 2, 3, 4, \dots, 20\}$  is the universal set.

 $A = \{1, 3, 5, 7, 8, 9, 11, 12, 13, 15, 19\},\$ 

 $B = \{2, 3, 4, 7, 10, 11, 13, 15, 17, 18\},\$ 

Verify i) A - B = (A' U B)'

ii)  $(A \cap B)' = A' \cup B'$ 

OR

Q.1Attempt the following:

w) Prove that  $[ \sim (p v q) v (p v q) ] \wedge r \equiv r$ 

x)How many different arrangements can be made of the letters of the word

CENTRAL, so that it begins with a consonant and end with a vowel?

y) If  $A = \{L, O, G, A, R, I, T, H, M\}$ 

 $B = \{T, H, E, O, R, Y\}$ 

 $C = \{T, H, E, O, R, E, M, S\}$ 

(5x4=20)

(5x4=20)

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**Q.3**Attempt the following:

a) Find a matrix X such that 2X + 3A - 4B = O where

 $\mathbf{A} = \begin{bmatrix} 2 & 1 \\ 2 & 4 \end{bmatrix} \qquad \mathbf{B} = \begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix}$ 

b) If  $T_5 = 35$  and  $T_9 = 59$ , then find its n<sup>th</sup> term.

c) i) Evaluate 
$$\begin{vmatrix} 3 & 10 & 1 \\ 3 & 0 & 1 \\ 5 & 3 & 2 \end{vmatrix}$$

ii) Define Matrix with example ..

d)) Construct the truth table for

i) ~ (~ 
$$p \lor ~ q$$
) b) ( $p \rightarrow q$ )  $\leftrightarrow$  (~  $p \lor q$ )

#### OR

:)

Q.3Attempt the following:

(5x4=20)

(5x4=20)

w) Solve the equation by Cramer's rule x + 2y + z = 7, 3x + z + 5 = 0, 2y + z = 9.

x) If  $A = \begin{bmatrix} 5 & 2 \\ -3 & 7 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & -3 & 4 \\ 5 & 8 & -2 \end{bmatrix}$  Find AB and BA if they exist.

y) Construct the truth table for the following, Also state its condition

$$(p \land q) \lor (\sim p) \lor [p \land (\sim q)]$$

z) For an G.P. 1, 3, 9, 27..... Find the value of  $T_n$  and  $S_n$  when n = 6.

Q.4Attempt the following:

a) Prove that Prove that  $(p \rightarrow q) \lor r \equiv [(p \lor ) r \rightarrow (q \lor r)]$ 

b) Check the validity of following:

If I am bored, then I go for a movie

I am not bored

Therefore I did not go for a movie.

Verify  $(B \cup C) \cap (B \cup A) = B \cup (C \cap A)$ 

z) Find the 6<sup>th</sup> term in the expansion of  $(\frac{x}{y} - \frac{y}{x})^{10}$ 

Q.2 Attempt the following:

a) ) i) Find 9 C5

ii) How many seating arrangement can be made for 5 students on 2 chairs?.

b) i) Solve the equation 
$$x^2 - 7x + 12 = 0$$
.

ii) Define set.

c) Find Inverse of matrix A if

If 
$$A = \begin{bmatrix} 4 & -11 \\ 3 & -8 \end{bmatrix}$$

d) Prove that  $(\sqrt{5}+1)^5 - (\sqrt{5}-1)^5 = 352$ .

#### OR

**O.2**Attempt the following:

w)) Show that 
$$\begin{vmatrix} 0 & x & y \\ -x & 0 & z \\ -y & -z & 0 \end{vmatrix} = 0$$

x)i) If A =  $\{1, 2, 3, 4, 5, 6\}$  B =  $\{4, 6\}$  then find A – B and B – A.

ii) Find the number of committees of 10 members, that can be formed out of a group of

12 persons.

y) By using matrix inversion method, Solve 3x + y = 2, 5x - y = 14

z) A class has 5 girls and 7 boys. If 4 persons out of these are to be selected,

Find the total number of choices if:

i) There is no restriction on gender ii)3 boys and 1 girl is to be selected.

(5x4=20)

(5x4=20)

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c) By using the inversion method, solve the equation

6x + y = 3, 11x + 2y = 5

d) For an A.P. with the first term as 3 and common difference as 5, then find  $T_n$  and  $S_n$ . Also calculate  $T_8$  and  $S_8$ 

#### OR

(5x4=20)

Q.4Attempt the following:

w) For the geometric progression 5, -5, 5, -5, ..... Find  $T_n$  and  $S_n$  when n = 3 x) Solve the following equations by using Cramer's rule

 $3x - 4z = 0, \quad x - y - z + 1 = 0, \quad 5x + y + z - 2 = 0.$ y)If A =  $\begin{bmatrix} 3 & -1 & 2 \\ 4 & 3 & -5 \end{bmatrix}$  B =  $\begin{bmatrix} -1 & 2 & 4 \\ 8 & -1 & 3 \end{bmatrix}$  C =  $\begin{bmatrix} 8 & 2 & 4 \\ -2 & 3 & 7 \end{bmatrix}$ Verify a) A - (B - C) = A - B + C b) (A+B)' = A' + B'

| z) Find the value of a determinant | 13 | 16 | 19 |  |
|------------------------------------|----|----|----|--|
|                                    | 14 | 17 | 20 |  |
|                                    | 15 | 18 | 21 |  |

Roll No: \_\_\_\_\_

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Total No. of Questions: 3

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Total No. of pages: 1

## B.Com Semester End Examination, October 2017

#### **Environmental studies**

| Semester: I              | Duration: 12Hours                    | Max. Marl | ks: 40   |
|--------------------------|--------------------------------------|-----------|----------|
| Instructions: :          | 1.All questions are compulsory       | :         | ;        |
| 2.                       | Figures to right indicates mark      | S         |          |
| 3. S.                    | tart each new question on a fre      | sh page   |          |
| <i>Q.1 A)</i> Explain an | ny four of the following             | ANY FOUR  | (4x4=16) |
| a. Need to st            | udy EVS                              |           |          |
| b. Advantage             | s and disadvantages of thermal energ | y         |          |
| c. Endangere             | d species                            |           |          |
| d. Conservati            | on of Energy                         |           |          |
| e. Ecological            | succession                           |           |          |
| f. Level of bi           | o diversity                          |           |          |
| Q.2. A) Hot spot         | of Bio diversity                     |           | (12)     |
|                          | OR                                   |           |          |
| X) Forest eco            | system                               |           | (12)     |
| Q.3. A) Threats fo       | or Bio diversity                     |           | (12)     |
| V) Frech wet             | OR<br>or accession                   |           | (13)     |
| X) Fresh wat             | er ecosystem                         |           | (12)     |

Roll No: .....

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| Duration: 02 Hrs               | B.Com Semester End Examination<br>Microeconomics<br>Semester I | Total No: of Questions: 06 |
|--------------------------------|--|----------------------------|
|                                |  | Maximum Marks: 80          |
| VI.D. Printer and rout questi  | on   | (184-16)                   |
| a) Explain the shifts in dema  | nd curve.  | (4X4=16)                   |
| b) Explain the assumptions to  | the scale of preference  |                            |
| c) Explain the Marginal rate   | of technical substitution                                      |                            |
| d) Explain increasing returns  | to scale.  |                            |
| e) Explain positive and negat  | ive cross elasticity of demand.                                | 1                          |
| f) Explain the concept of mo   | nopolistic competition and economic e                          | fficiency.                 |
| Q2.Explain any four questi     | on   | (4X4=16)                   |
| a) Explain the concept of pro  |  |                            |
| b) Explain the features of per | -  |                            |
| c) Explain the long run avera  | ge cost curve.   |                            |
| d) What are cartels?           |  |                            |
| e) Differentiate between imp   |  |                            |
| f) Explain kinked demand cu    |  | (1.1713-13)                |
| Q3. Answer any one question    |  | (1X12=12)                  |
| a)Explain the law of demand    |  |                            |
| OR                             |  |                            |
| · ·                            | ypes of price elasticity of demand.                            | (1X12=12)                  |
| Q4. Answer any one questi      | on.  | (1/12-12)                  |
|                                | conomies and diseconomies of scale.                            |                            |
|                                | OR .   |                            |
| b) Explain the law of variabl  |  | (1X12=12)                  |
| Q5. Answer any one questi      | o <b>n.</b>  | · ·                        |
|                                | um of the firm under perfect competiti                         |                            |
| 0                              |  |                            |
| b) Explain the indifference c  | urve analysis.   | (1X12=12)                  |
| Q6. Answer any one quest       | ion.   |                            |
| a)Explain Cournot's duopoly    | model.   |                            |
| 0                              | OR   | suitable schedule and      |
| b) Explain the relationship b  | OR<br>etween AC, AFC, AVC and MC with                          |                            |
| diagram.                       |  |                            |

Total No: of Questions: 4

**B.Com Semester End Examination** 

Total No: of pages: 4

Commercial Arithmetic-I

Semester No : I

Duration: 2 Hrs.

Instructions: 1) All Questions are Compulsory.

2) Figures to right indicate marks.

3) Start each new question on a fresh page.

4) Programmable calculators are not allowed.

0.1 Attempt the following:

a) If the 5<sup>th</sup> term of an A.P. is 35 and its 9<sup>th</sup> term is 59, find its nth term.

b) Check the validity of following

If it rains, then there is a traffic jam

There was no traffic jam

Therefore It did not rain

c) By using the inversion method, solve the equation

3x + 5y = 1, 2x + 4y = 2

d) In how many years, the amount of money will be double the principal at s.i. of 12 % per annum?

OR

Q.1Attempt the following:

w) Prove that  $[ \sim (p v q) v (p v q)] \land r \equiv r$ 

Maximum Marks: 80

(5x4=20)

- **x**) If  $A = \begin{bmatrix} 1 & 2 \\ 3 & 34 \end{bmatrix}$  show that  $A^2 5A 2I$  is a zero matrix.
- y) For 5, -5, 5, -5, ..... of an G.P. find  $T_n$  and  $S_n$  when n = 6.
- z) A bank has decided to collect fixed deposits at the rate of 10% p. a. to be compounded on

i) yearly basis ii) quarterly basis iii) monthly basis, find effective rate of interest.

Q.2Attempt the following:

- a) i) Define null set and singleton set.
  - ii) What principal will yield Rs. 500 at 16 % per annum in 1 year?
- b) Find the sum  $6 + 10 + 14 + 18 + \dots + 62$ .
- c) Find whether the following statement is tautology, contradiction or neither

 $[p \rightarrow (q \rightarrow r)] \leftrightarrow [(p \land q) \rightarrow r)]$ 

d) How many different arrangements can be made of the letters of the word?

CENTRAL, so that it begins with a consonant and end with a vowel?

#### OR

- Q.2 Attempt the following:
- w) i) How many different different numbers one can form using all the digits of the number 553225?
  - ii) Find n, If  $3(np_4) = np_5$
- x) The nth term of a G.P. with a = 6 and r = 7 is 14406. Find n and calculate corresponding  $S_n$ .
- y) i) Solve the equation  $x^2 5x 6 = 0$ 
  - ii) Find the interest if principal is Rs. 4000 and amount is Rs. 5200.
- z) Construct the truth table for i)  $(p \lor q) \land \neg p$  ii)  $(p \land q) \rightarrow (q \lor \neg p)$
- Q.3 Attempt the following:

**a)** Show that  $\begin{vmatrix} y+z & z & y \\ z & z+x & x \\ y & x & x+y \end{vmatrix} = 4xyz.$ 

(5x4=20)

(5x4=20)

**b)** If  $X = \{A, B, C, D, E, G, H, I, L, M, N, O, R, S, T, Y, Z \}A = \{L, O, G, A, R, I, T, H, M \}B = \{T, H, E, O, R, Y \}C = \{T, H, E, O, R, E, M, S \}$ 

Verify i) B - C = (B' U C)' ii) (C - A)' = C' U A

c) Find Inverse of matrix A if

 $\mathbf{A} = \begin{bmatrix} -3 & 7\\ 5 & 2 \end{bmatrix}$ 

d) i) Find the total number of selections of 8 objects out of 10 students.

ii) Find the number of words that can be formed from the word REPETITION.

OR

Q.3 Attempt the following:

**w**) i) Evaluate  $\begin{vmatrix} 1 & 3 & 4 \\ 2 & -1 & 3 \\ 2 & 1 & 2 \end{vmatrix}$ 

ii) Define transpose of matrix.

x) A club has 5 girls and 7 boys. If 4 persons out of these are to be selected,

Find the total number of choices if:

i) There is no restriction on gender,

ii)3 boys and 1 girl is to be selected.

y) If A = 
$$\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$$

show that  $A^2 = 2A$ 

**z)** If  $X = \{1, 2, 3, 4, \dots, 10\}$ 

•  $A = \{1, 2, 3, 4\}$   $B = \{2, 4, 6, 8\}$  and  $C = \{3, 4, 5, 6\}$ 

 $\cdot$  Verify i) A U ( B  $\cap$  C ) = ( A U B )  $\cap$  ( A U C )

ii) (A - B) = (A' U B)'

Q.4Attempt the following:

**a)** For an G.P. 9, 
$$\frac{9}{2}$$
,  $\frac{9}{4}$ ,  $\frac{9}{8}$ , ..... Find the value of  $T_n$  and  $S_n$  when  $n = 6$ .

(5x4=20)

b) Rs 5000 is invested at 12 % for following deviation

i) 1 year ii) 3 months iii) 2 year 5 months

Find the amount in each case.

c) i) How many seating arrangements can be made for 5 students on 2 chairs?

ii) If  $2n p_3 = 36 (n p_2)$ 

|                                      | 13 | 16 | 19 |  |
|--------------------------------------|----|----|----|--|
| d) Find the value of the determinant | 14 | 17 | 20 |  |
|                                      | 15 | 18 | 21 |  |

OR

(5x4=20)

Q.4 Attempt the following:

w) i) Define permutation and combination

ii) Find 9p5

**x**) Find the amount is received at principal Rs. 500 is invested at 12 % per annum for 2 years, if the interest is compounded,

i) quarterly ii) half yearly iii) monthly

**y**) For an A.P. with  $T_{10} = 16$  Find  $S_{19}$ .

z) Solve the following equations by using Cramer's rule

3y - 4z = 0, x - y - z + 1 = 0, 5x + y + z - 2 = 0