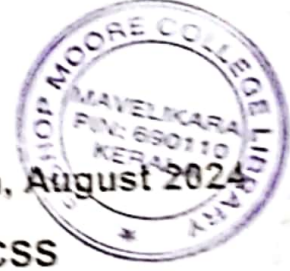


Reg. No. : .....

Name : .....



Second Semester B.Com. Degree Examination, August 2024

First Degree Programme under CBCSS

Complementary Course

CO 1231/CX 1231/CC 1231 : BUSINESS MATHEMATICS

(Commerce/Commerce and Tax Procedure and Practice/Commerce with  
Computer Applications)

(2018 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

PART - A

Answer all. Each carry 1 mark.

1. Solve :  $4(x - 2) + 5(x - 3) - 25 = x + 8$ .
2. Find the value of  $10C_3$ .
3. David took a math test and got 25 correct and 15 incorrect answers. What was the percentage of correct answers?
4. Convert  $5/3$  into decimal.
5. What do you mean by Universal Set?
6. If 1 pound = 16 ounces, how many pounds are in 435 ounces?
7. Simplify :  $21 - 12/3 \times 2$ .

P.T.O.

8. What is Ogive?
9. If  $A = \{1, 2, 3, 4\}$ ,  $B = \{3, 4, 5, 6\}$ ,  $C = \{5, 6, 7, 8\}$  and  $D = \{7, 8, 9, 10\}$ . Find BUCUD.
10. In how many ways can a cricket eleven be chosen out of a batch of 15 players?

(10 × 1 = 10 Marks)

### PART – B

Answer **any eight**. Each carry 2 marks.

11. Two third of a number decreased by 2 equals 4. Find the number.
12. Find the Compound Interest for Rs.10,000/- for  $2\frac{1}{2}$  years at 10% p.a.
13. Helen who is a realtor. She receives 3% commission when she sells a house. How much commission will she receive for selling a house that costs Rs.2,60,000?
14. An interest rate is quoted as 4.80% p.a compounding semi-annually. Calculate the equivalent interest rate compounding monthly.
15. A trader from the USA to make investments in the UK financial market. He has a planned budget of \$20,000. The offshore broker informs the trader that if he exchanges US dollars for the British pound, he will get £15,479.10.  
  
Help the trader determine the exchange rate between the USA and UK.
16. Salman and Usman Bros. acquired a machine on July 1, 2008 at a cost of Rs.70,000 and spent Rs.5,000 on its installation. The firm writes off depreciation @ 10% on straight line method. Calculate the amount of depreciation.
17. How many words can be formed by using all letters of the word 'DAUGHTER' so that the vowels always come together?

18. A person plans to contribute Rs.2,000 every year to a retirement account which is paying 8% interest. If the person retires in 30 years, what is the future value of the amount?
19. A man sell 7 horses and 8 cows at Rs.2,490 and 5 horses and 6 cows at Rs.2,150. What is the selling price of each?
20. X borrowed Rs.26,400 from a bank to buy a scooter at the rate of 15% p.a compounded yearly. What amount will be pay at the end of 2 years and 4 months to clear the loan.
21. A salesman gets a 10% commission on the total sales. If the sales exceeds Rs.20,000 he will get 5% as an additional commission on the excess of sales. If he gets a total commission of Rs.2,900 then find the bonus that he received.
22. Mr. Ryan bought 50 shares, each of nominal value Rs.100. After one year he received Rs.400 as dividend against them. Find the rate of dividend on his shares.

**(8 × 2 = 16 Marks)**

### PART – C

**Answer any six. Each carry 4 marks.**

23. A certain sum amounts to Rs.678 in 2 years and to Rs.736.50 in 3-5 years. Find the rate of interest and principal amount.
24. Solve the equation:  $x^{10} - 33x^5 + 32 = 0$ .
25. Calculate EPS from the following information:

Equity Share Capital (Rs.10 each) = Rs.5,00,000

10% preference capital (Rs.50 each) = Rs.4,00,000

Rate of tax: 50% of net profit.

Net Profit before tax = Rs.1,80,000.

26. The fixed costs for the year are Rs.60,000. Selling price per unit is Rs.15 and variable cost per unit is Rs.10. Calculate BEP output.
27. Calculate the amount of annual depreciation and rate of depreciation under straight line method from the following:  
Purchased a second hand machine for Rs.96,000, spent Rs.24,000 on its cartage, repairs and installation, estimated useful life of machine for 4 years. Estimated residual value Rs.72,000.
28. Explain the different types of statistical graphs or charts.
29. Solve the following equation by using matrix:
- $$5x - 6y + 4z = 15$$
- $$7x + 4y - 3z = 19$$
- $$2x + y + 6z = 46$$
30. Out of 2400 students who appeared for B.Com degree examination, 1500 failed in numerical skills, 1200 failed in accountancy and 1200 failed in informatics, 900 failed in both numerical skills and accountancy, 800 failed in both numerical skills and informatics, 300 failed in informatics and accountancy, 40 failed in all subjects. How many students passed all three subjects?
31. Aman makes an investment in mutual fund which promises following cash flows for five years. The discount rate is 10%. Find the Present Value.

Year	Cash flow (Rs.)
1	1,000
2	2,000
3	2,000
4	3,000
5	3,000

(PVF : 0.9091, 0.8264, 0.7513, 0.6830, 0.6209)

(6 × 4 = 24 Marks)

PART – D

Answer **any two**. Each carry **15** marks.

32. Three shopkeepers A, B and C go to a store to buy stationery. A purchases 12 dozen note book, 5 dozen pens and 6 dozen pencils. B purchases 10 dozen note books, 6 dozen pens and 7 dozen pencils. C purchases 11 dozen note books, 13 dozen pens and 8 dozen pencils. A note book costs 40 paise, a pen costs Rs.1.25 and pencil costs 35 paise. Use matrix multiplication to calculate each individual bill.

33. A company is making a loss of Rs.40,000 and relevant information is as follows:

Sales : Rs.1,20,000

Variable Costs : Rs.60,000

Fixed Costs: Rs.1,00,000.

Loss can be made good either by increasing the sales price or by increasing the sales volume.

What are Break Even Sales if

(a) Present sales level is maintained and the selling price is increased.

(b) If present selling price is maintained and the sales volume is increased. What would be sales if a profit of Rs.1,00,000 is required?

34. (a) Mathew invested Rs.67,200 in Rs.100 shares which are quoted at Rs.120. Calculate the income if 12% dividend is declared on the shares.

(b) Calculate the dividend due at the end of a year on 250 shares of Rs.50 each, if the half-yearly dividend is 4% of the value share.

35. (a) Rani Limited purchases goods on cash and credit terms. From the following information, calculate creditors turnover ratio and average payment period in days.

Total Purchases: Rs.4,20,000

Cash Purchases: Rs.40,000

Purchase Returns: Rs.20,000

Creditors at the end of the year = Rs.70,000

Bills payable at the end of the year = Rs.10,000

Provision for discount on creditors = Rs.3,750.

- (b) Compute G/P ratio from the following :

Sales — Rs.5,12,000.

Sales returns — Rs.10,000

Opening Stock — Rs.82,000

Closing Stock — Rs.64,400

Purchases — Rs.3,92,000

Purchase Returns — Rs.8,000.

**(2 × 15 = 30 Marks)**