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OEMT112

Reg. No.

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I Semester B.A./B.Com. Degree Examination, February/March - 2024

MATHEMATICS
Corporate Mathematics (OE)
(NEP Scheme)



Paper : I

Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates:

Answer ALL questions.

I. Answer any Six

(6×2=12)

1. Solve $\frac{x+2}{x-1} = \frac{5}{2}$ for x
2. What are simultaneous equations. Mention any two methods to solve them.
3. Factorize $x^2+5x+6=0$
4. Solve the equations $x-2y = 4$, $x+7y = 6$
5. Explain cumulative frequency with example.
6. What is an open end class. Give an example.
7. Define arithmetic mean of a set of observations and mention two of its merits.
8. Find the combined mean of $\bar{X}_1 = 25, \bar{X}_2 = 40$
 $n_1 = 20, n_2 = 10$
9. What is data interpretation and mention its types.
10. Define Linear Programming Problem (LPP)

[P.T.O.]



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II. Answer any Three

(3×4=12)

11. Solve for x : $\frac{2(x-1)}{x-3} - \frac{3}{x+1} = 2$.

12. Solve for x, y if $7(y+3)-2(x+2) = 14$ and
 $4(y-z)+3(x-3) = 2$

13. Solve for x by using Sridharacharya's method $5x^2-13x+8=0$.

14. The following are weights of 30 students. Draw a frequency distribution with class intervals of width 6 kgs.

Weights(Kgs): 51, 47, 50, 54, 62, 52, 42, 49, 52, 49,

44, 50, 53, 58, 46, 50, 51, 53, 48, 50,

55, 52, 55, 58, 63, 54, 52, 49, 50, 58

15. Maximize $Z = 5x_1 + 7x_2$ subject to $x_1 + x_2 \leq 4$

$3x_1 + 8x_2 \leq 24$, $10x_1 + 7x_2 \leq 35$, $x_1, x_2 \geq 0$

16. Represent the following marks of 2 students scored in the subjects by bardigram.

Subjects	Student A	Student B
Statistics	80	85
Mathematics	75	92
Accountancy	90	70
Business studies	60	75

III. Answer any SIX

(6×6=36)

17. Three years hence a father will be three times as old as his son, 5 years ago his age was 6 years more than 4 times that of his son. Find their present ages.

18. Solve for x , $\frac{x+3}{x+2} = \frac{3x-7}{2x-3}$

19. The gain in selling an article is much percent of its cost as the cost in rupees. If the sale price is Rs.144. Find its cost.

20. Find the fraction which is equal to $\frac{1}{2}$ when both its numerator and denominator increased by 1 and which is equal to $\frac{2}{3}$ when both are increased by 4.
21. Calculate the CV (Coefficient of Variance) for the following frequency distribution.

No. of goals in a match(x)	0	1	2	3	4
Team	22	8	7	8	3

22. Calculate the harmonic mean for the following data.

X	12	14	16	18	20
F	3	5	9	4	2

23. Draw the line graph for the data

Year	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998
Exports	3300	4000	5700	6300	6700	6000	6500
Imports	2000	2500	2800	3000	3500	3800	4000

24. Calculate the variance and standard deviation for the following data.

C.I	0-5	5-10	10-15	15-20	20-25
f	20	25	32	28	18

25. Calculate the mode for the following frequency distribution.

Income	1000-2000	2000-3000	3000-4000	4000-5000	5000-6000	6000-7000
No. of Workers	15	18	30	17	18	22

26. A Company produces two articles A and B. There are two departments through which it passes. The maximum potential capacity of assembly is 60 hrs and finishing department is 48 hrs. Production of 1 unit of A requires 4 hrs assembly and 2 hrs in finishing. Each unit of B requires 2 hrs of assembly and 4 hrs in finishing. If the profit is Rs.80 for A and Rs.60 for B. Formulate the linear programming problem and solve graphically.