14VCU07

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2019
(Second Semester)

Branch - **VISUAL COMMUNICATION(ELECTRONIC MEDIA)**

MATHEMATICS

Time : Three Hours Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 2 = 20)

I Find the average of all prime numbers betw een 30 and 50.
2. Find the average of first 20 multiples of 7.
3. What % of 7 is 84?
4. If C.P - Rs.56.25, gain = 20% the find S.P.
5. Find the fourth proportional to 4, 9, 12.
6. Find the simple interest on Rs. 15000' for .3 year at 5% p.a.
7. Define square matrix.
8. Write the order of the matrix [3 8 9 -2]
9. Define degenerate basic solution.
10. Define surplus variables.

SECTION - B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

II a. The average of four consecutive even numbers is 27. Find the largest of these numbers.

OR

b. The ages of two persons differ by 16 years. If 16 years ago, the elder one be 3 times as old as the younger one, find their present age.

b. a. Find the value of $\frac{\triangle 3)'' \sim \text{‘}3}{9 \cdot x3^{n''}}$ $^{n/5 \; ; \; 2n+1}$

OR

b. Difference of two numbers is 1660. if 7.5% of one number is 12.5% of the other number, find the two numbers.

13 a. If Rs.500 amounts to Rs. 583.20 in 2 years compounded annually, find the rate of interest p.a.

OR

b. A bag contains 50p, 25p, lOp coins in the ratio 5:9:4, amounting to Rs. 206. Find the number of coins of each type.

14 a. If A = $\begin{vmatrix} '1 & 2 & 3' \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{vmatrix}$ and B = $\begin{vmatrix} -1 & -2 & -4'' \\ -1 & -2 & -4 \\ 1 & 2 & 4 \end{vmatrix}$ then prove that AB * BA

OR

Minor a

determinant $\begin{vmatrix} '5 & 6 & 7 \\ 0 & 1 & -3 \\ -2 & 4 & 9 \end{vmatrix}$

15 a. A manufacture produces two types of models Mi and M2. Each M) model requires 4 hours of grinding and 2 hours of polishing whereas each M_2 model required 2 hours of grinding and 5 hours of polishing. The manufacture has 2 grinders and 3 publishers. Each grinder works for 40 hours a week and each polisher's works for 60 hours a week. Profit on an Mi model is Rs. 3.00 and M_2 model is Rs. 4.00. whatever is produced in a week is sold in the market. How should the manufacture allocate his production capacity to the two types of models so that he may make the maximum profit in a week?

OR

b. Solve by graphical method:

Minimize $Z = -3xj + 4x_2$

Subject to

$Xj + x_2 < 4$

$2xi + 3x_2 > 18$

And X], $x_2 > 0$

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16. i). if three numbers are added in pairs, the sums equal 10.19 and 21. find the numbers.

ii). Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son. What are their present ages?

17. i). Find the values of — $\frac{2/3\ \sqrt[3]{6^7}}{\sqrt[3]{6^6}}$

ii). A man sells an article at a profit of 25%. If he had bought it at 20% less and sold it for Rs. 10.50 less, he would have gained 30%. Find the cost price of the article.

18. i) At what rate percent will a sum of money double in 16 years?

ii) A sum of money doubles itself at C.I in 15 years. In how many years will it become 8 times?

19. Solve the equations by Cramer's Rule.

$2x + 3y + 3z = 22;$

$x - y + z = 4;$

$4x + 2y - z = 9.$

20. Solve by simplex method.

Max $Z = 3xi + 4x_2$

Subject to

$4xi + 2x_2 < 80;$

$2xi + 5x_2 > 180;$

and X), $x_2 > 0$.

Z-Z-Z END