

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2017
(Second Semester)**

/4VCOO7

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

MATHEMATICS

Time: Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10x2 = 20)

- 1 Find the average of first 20 multiples of 7.
- 2 The sum of the squares of three consecutive odd numbers is 2531. Find the numbers.
- 3 What is the quotient when (x^3-1) is divided by $(x-1)$?
- 4 Which is greatest in 16% , $\frac{1}{3}$ and 0.17?
- 5 If $x : y = 2 : 1$, then find $(x^2-y^2) : (x^2+y^2)$?
- 6 At what rate percent per annum will a sum of money double in 16 years?
- 7 Find the minor and cofactor of the element 7 from
$$\begin{vmatrix} 3 & 7 & 9 \\ 4 & -1 & 5 \\ 2 & -3 & -4 \end{vmatrix}$$
.
- 8 If $A = \begin{pmatrix} 1 & 2 \\ 7 & 0 \end{pmatrix}$ and $B = \begin{pmatrix} 4 & 0 \\ 3 & -1 \end{pmatrix}$, find $A + B$ and $A - B$.
- 9 Write the general linear programming problem.
- 10 Define slack variables.

SECTION - B (25 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks. (5x5 = 25)

- 11 a A number consists of two digits. The sum of the digits is 9. If 63 is subtracted from the number, its digits are interchanged. Find the number.
OR
- b 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?

$$6^x \cdot x^{6^x}$$

- 12 a Find the value of

OR

- b 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 of the article.

- 13 a In a mixture of 60 litres, the ratio of milk and water is 2 : 1. If this ratio is to be 1 : 2, then what is the quantity of water to be further added?

OR

- b A certain sum of money amounts to Rs. 1008 in 2 yrs and to Rs. 1164 in $\frac{1}{4}$ yrs. Find the sum and the rate of interest.

- 14 a Find the inverse of $A = \begin{bmatrix} r & -r \\ 2 & 0 \end{bmatrix}$
OR
- b Using Cramer's rule, solve
 $x - 2y = 16$
 $3x + y = -1$.
- 15 a Solve the following L.P.P graphically:
 Maximise $z = X_1 + x_2$, subject to the constraints :
 $X_1 + x_2 < 1$, $-3x + x_2 > 3$, $X_j > 0$, $x_2 > 0$.
 OR
- b, Write the Canonical and standard forms of L.P.P.

SECTION - C (30 Marks)

Answer any THREE Questions

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

- 16 a The product of the ages of Ankit and Nikita is 240. If twice the age of Nikits is more than Ankit's age by 4 years, what is Nikita's age?
- ' b Abhay's age after six years will be three-seventh of his father's age. Ten years ago, the ratio of their ages was 1 : 5. What is Abhay's father's age. at present?
- 17 a.. Find the value of $\frac{(243)^{n/5} \cdot 3^{2n+1}}{9^n \times 3^{2n-1}}$
- b When a producer allows 36% commission on the retail price of his product, he earns a profit of 8.8%. What would be his profit percent if the commission is reduced by 24%.
- 18 a What annual instalment will discharge a debt of Rs. 1092 due in 3 years at 12% simple interest?
- b A sum of money doubles itself at compound interest in 15 years. In how many years will it become eight times.
- 19 Using Cramer's method, solve the following equation:
 $2x - 3y + 5z = 11$; $5x + 2y - 7z = -12$; $-4x + 3y + z = 5$.
- 20 Use simplex method of solve the following LPP
 Maximize $Z = 4x_1 + 10x_2$
 Subject to the constraints:
 $2x_1 + x_2 < 50$, $2x_1 + 5x_2 < 100$, $2x_1 + 3x_2 < 90$; $X_i > 0$ and $x_2 > 0$.

Z-Z-Z

END

