UNIVERSITY OF PETROLEUM & ENERGY STUDIES
End Semester Examination (Online) – Dec, 2021

Program: BBA GES   **Semester: I**
Subject/Course: Business Mathematics   **Max. Marks: 100**
Course Code: DSQT 1001   **Duration: 3 Hours**

	Section-A		

1.	If A={1,2,3,4,6} and B={6,7,8} then $A \cup B$ will be
	        (a) {1,2,3,4,6,7,8}
	        (b) {6,7,8}
	        (c) { }
	        (d) {6}
		2	**CO1**

2.	If A and B are two matrices, then which of the following property is true?
	        (a) $A + B \neq B + A$
	        (b) $(A^t)^t \neq A$
	        (c) $AB \neq BA$
	        (d) all are true
		2	**CO1**

3.	Derivative of x^2 is
	
	        (a) 2x
	        (b) 1/x
	        (c) 1/2x
	        (d) None of the above
		2	**CO1**

4.	Value of $\int 2x^n dx$
	        (a) $2(\frac{x^{n+1}}{n+1}) + c$
	        (b) $2nx^{n-1} + c$
	        (c) $2(\frac{nx^{n-1}}{n-1}) + c$
	        (d) Can't determined
		2	**CO1**

5.	If x, x+2, 2x are in arithmatic progression, then the value of x can be
	        (a) 1
	        (b 4
	        (c) Both (a) and (c)
	        (d) Can't determine
		2	**CO1**

6.	If $\begin{vmatrix} x & 4 \\ -3 & 2 \end{vmatrix}$=2 then the value of x will be
	
	        (a) 3
	        (b) 7
		2	**CO1**

Q.No	Question	Marks	COs
	(c) -5 (d) None of the above		
7.	If u and v are the functions of x then by product rule of differentiation (a) $\frac{d}{dx}(u.v) = \frac{d}{dx}u + \frac{d}{dx}v$ (b) $\frac{d}{dx}(u.v) = \frac{d}{dx}u - \frac{d}{dx}v$ (c) $\frac{d}{dx}(u.v) = u\frac{d}{dx}v + v\frac{d}{dx}u$ (d) $\frac{d}{dx}(u.v) = u\frac{d}{dx}u + v\frac{d}{dx}v$	2	CO1
8.	If there is only one Row in a matrix, it is called (a) Row Matrix (b) Column Matrix (c) Square Matrix (d) None of the above	2	CO1
9.	If a, b, c are in arithmatic progression, then which of the following is true (a) b-a=b-c (b) b-c=b-a (c) b-a=c-b (d) None of the above	2	CO2
10.	The series 4, 16, 64, 256…….. is in (a) Arithmetic Progression (b) Geometric Progression (c) Both (a) & (b) (d) None of these	2	CO2

Section-B

Q.No	Question	Marks	COs
11.	Explain the importance of mathematics in business.	5	CO1
12.	Using product rule find the derivative of (2x+3)(x-7).	5	CO1
13.	Find two terms between $\frac{1}{3}$ and $\frac{1}{81}$ such that the series are in G.P.	5	CO4
14.	Integrate the function $2x^2 + 3x - 7$ with respect to x.	5	CO4

Section-C

Q.No	Question	Marks	COs
15.	For the set A={2,4,6,8} and B={4,5,7} find $A \cup B$, $A \cap B$, A-B, A×B and B×A.	10	CO2
16.	If $A = \begin{bmatrix} 2 & -4 & 3 \\ -3 & -1 & 0 \\ 1 & 3 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 3 \\ -3 & 0 & 4 \\ -2 & 2 & -2 \end{bmatrix}$ then find $|AB|$	10	CO2

17.	(a) Find the 10th term of the series 10, 8, 6, 4………… (b) Find the 6th term of the series 2, 4, 8, 16……….. **'OR'** Find elasticity of demand of the function x= 100-5p at p=10.	10	CO3

Section-D

18.	Solve the following equation using cramer's rule. $$x+y+z =20$$ $$2x+y-z =23$$ $$3x+y+z=46$$	15	CO3
19.	(a) If $y=\frac{x+3}{x-1}$ find $\frac{dy}{dx}$ using quotient rule of differentiation. (b) If y= (x+2)(3x-4) find $\int y\,dx$ using product rule of integration. **'OR'** Find the sum of first 10 terms of an increasing arithmetical progression, the sum of whose first 3 terms is 27 and the sum of their squares is 275.	15	CO4