

Name:
Enrolment No:



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

Program: BBA ABD
Subject/Course: Business Mathematics
Course Code: DSQT 1001

Semester: I
Max. Marks: 100
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) $2\left(\frac{x^{n+1}}{n+1}\right) + c$ (b) $2nx^{n-1} + c$ (c) $2\left(\frac{nx^{n-1}}{n-1}\right) + c$ (d) Can't determined	2	CO1
5.	If $x, x+2, 2x$ are in arithmetic 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

	(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 arithmetic 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			
15.	For the set $A=\{2,4,6,8\}$ and $B=\{4,5,7\}$ find $A \cup B$, $A \cap B$, $A-B$, $A \times B$ and $B \times A$.	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 10 th term of the series 10, 8, 6, 4..... (b) Find the 6 th term of the series 2, 4, 8, 16..... <p style="text-align: center;">‘OR’</p> 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. <p style="text-align: center;">‘OR’</p> 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