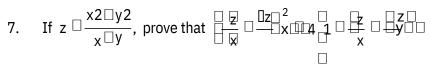
	l No. of Questions : 15	Total No. of Pages : 03
	M.Sc. (Chemistry) (2018 & onwards) NUMERICAL METHODS FOR C Subject Code : CHL406B-1 M.Code : 75119	
Tim	ie: 3 Hrs.	Max. Marks : 50
1. 2. 3.	TRUCTIONS TO CANDIDATES: SECTION-A is COMPULSORY consisting of FIVE queeach. SECTION-B contains EIGHT questions carrying FOU have to attempt any SIX questions. SECTION-C will comprise of two compulsory questions withese questions. Each question carries EIGHT marks.	JR marks each and students
SECTION-A		
1.	Compute the sum $\begin{bmatrix} 2 & \Box 1 \Box & \Box 4 & 3 \Box \\ \vdots & \vdots & \vdots & \vdots & \Box 2 \dot{\Box} \Box \end{bmatrix}$	
2.	Define function.	
3.	Define exact differential equation.	
4.	In a throw of two coins, find the probability of getting both	heads or both tails.
5.	Find the value of x such that $\begin{bmatrix} 1 & 0 & 2 & 1 \\ 0 & 2 & 1 & 0 \end{bmatrix}$ $\begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 2 & 1 & 0 \end{bmatrix}$	
SECTION-B		

1 | M-75119 (S44)-485

6. If A □7 4 □3□, find A-1
□2 1 6□□



- 8. Solve (x2 + y2 + 2x) dx + 2y dy = 0.
- 9. If events A and B are two independent events such that P (A) = 0.2, P (AUB) = 0.6, then find P (B).
- 10. If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 1 \end{bmatrix}$ then prove that A2 4A 5I = 0.
- 12. Solve $y \Box x \frac{dy}{dx} \Box a \Box y 2 \Box \frac{dy}{dx} \Box$.
- 13. If $\frac{n!}{2!(n \square 2)!} \cdot \frac{n!}{4!(n \square 4)!} = 2:1 \text{ find n }.$

SECTION-C

14. a) If z is a function of x and y, prove that if $x = eu + e^{-v}$, $y = e^{-u} - e^{v}$, then

$$\frac{\square z}{\square u} \square \frac{\square z}{\square v} \square \overset{x \square z}{\longrightarrow} \square \overset{y \square z}{\square v}$$

b) Prove that
$$\begin{vmatrix} b2 \ \Box c2 & ab & ac \\ ab & c2 \ \Box a2 & bc \\ ca & cb & a2 \ \Box b2 \end{vmatrix} \Box 4ab^2c^2 \ ^2$$

OR

a) If
$$A = \begin{bmatrix} 1 & \Box_1 &$$

b) Discuss the continuity of the function (f(x, y) defined by :

$$f(x,y)$$
 $\xrightarrow{\square}$ $x y \sin \xrightarrow{\square}$ $\xrightarrow{\square}$ $x \cos y \cos y$ $x \cos y \cos y$

- 15. a) Solve (y4 + 2y) dx + (xy3 + 2y4 4x) dy = 0.
 - b) Calculate Arithmetic mean from the following data using step-Deviation method.

OR

a) By the method of least squares, find a straight line that best fits the following data:

b) Solve (D3 + 1)
$$y = 3 + e - x$$
.

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

3 | M-75119 (S44)-485