

**Council for Technical Education and Vocational Training**  
**Vinayak College of Health Science**  
**Gaushala, Kathmandu**  
**First Internal Assessment 2081**

**NEW COURSE**

Subject: Mathematics and Statistics F.M. - 80  
 Program: CMLT/ GM/ DPH/Physio P.M. - 32  
 Time: 3 Hours

**Group: A** **(10×1=10)**

Tick (✓) the best answer.

- Which of the following is the closed interval?  
 (a) (0, 3) (b) (1, 4] (c) [-2, 2) (d) [-3, 3]
- If  $\log_e a = 0$ , what is the value of  $a$ ?  
 (a) 0 (b) 1 (c)  $e$  (d)  $\infty$
- How many ways can 8 people be seated at a round table?  
 (a) 7! (b) 8! (c)  $\frac{7!}{2}$  (d) 4!
- What is the transpose of the matrix  $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$ ?  
 (a)  $\begin{pmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{pmatrix}$  (b)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$  (c)  $\begin{pmatrix} 1 & 3 & 5 \\ 2 & 4 & 6 \end{pmatrix}$  (d)  $\begin{pmatrix} 1 & 5 \\ 2 & 6 \\ 3 & 4 \end{pmatrix}$
- What is the slope of line  $3x - 4y + 5 = 0$ ?  
 (a)  $\frac{4}{5}$  (b)  $\frac{3}{4}$  (c) 3 (d) -4
- What is the condition of homogeneous equation  $ax^2 + 2hxy + by^2 = 0$  to be parallel?  
 (a)  $h^2 - ab = 0$  (b)  $h^2 + ab = 0$  (c)  $\sqrt{h^2 + ab} = 0$  (d)  $h^2 - ab \neq 0$
- What is the limiting value of  $\lim_{x \rightarrow \infty} \frac{1}{x}$ ?  
 (a) 0 (b) 1 (c)  $\infty$  (d)  $-\infty$
- What is the derivative of:  $f(x) = x^3 + 2x^2 + 5$ ?  
 (a)  $3x^2 + 4x + 5$  (b)  $3x^2 + 4x$   
 (c)  $x^3 + 2x^2 + 5$  (d)  $3x^3 + 2x + 5$
- What is the antiderivative  $\int \frac{1}{x} dx$ ?  
 (a)  $x + C$  (b)  $\frac{1}{x^2} + C$  (c)  $\frac{1}{x} + C$  (d)  $\ln|x| + C$

- A card is drawn at random from a well shuffled deck of 52 cards. What is the probability that it is a spade?  
 (a)  $\frac{1}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{1}{4}$  (d)  $\frac{2}{5}$
- In a certain distribution, mode and median are 3.2 and 3.3, what is the value of mean?  
 (a) 3.35 (b) 6.5 (c) 0.1 (d) 3.5
- If  $Q_1 = 20$  and  $Q_3 = 40$ , what is the coefficient of quartile deviation?  
 (a) 0.25 (b) 0.33 (c) 0.50 (d) 0.75
- What is the range of values that the correlation coefficient (r) can take?  
 (a) -2 to 2 (b) -1 to +1  
 (c) 0 to 1 (d)  $-\infty$  to  $+\infty$
- What is Crude Birth Rate (CBR) of a town whose midyear population is 5000 and live birth in a year is 150?  
 (a) 20 per thousand (b) 30 per thousand  
 (c) 40 per thousand (d) 50 per thousand
- What is the main objective of research?  
 (a) To guess solutions (b) To solve problems  
 (c) To generate new knowledge (d) To dismiss theories
- What section of research report summarizes the entire study in brief?  
 (a) Abstract (b) Introduction  
 (c) Methodology (d) Conclusion
- What is the primary role of the Central Processing Unit (CPU) in a computer system?  
 (a) Storing data (b) Executing instructions and processing data  
 (c) Managing external devices (d) Displaying information on the screen
- Which input device is primarily used for typing text and commands into a computer?  
 (a) Mouse (b) Joystick  
 (c) Keyboard (d) Trackball
- What is the primary function of speakers as output devices?  
 (a) To display visual content on a monitor  
 (b) To input audio signals into a computer  
 (c) To convert digital audio signals into audible sound  
 (d) To store and process digital files
- Which office automation tool is specifically designed for creating and delivering presentations?  
 (a) Microsoft Word (b) Microsoft Excel  
 (c) Microsoft PowerPoint (d) Microsoft Outlook