

VINAYAK COLLEGE OF HEALTH SCIENCE

Battisputali-9, Kathmandu

Faculty: HA,LAB, DPH and Physiotherapy, First Year

Subject: Mathematics & Statistics

Full marks: 20

Time: 20 Minute

SECOND INTERNAL EXAMINATION 2081

NAME: ..... ROLL NO: .....

FACULTY: General Medicine  Pharmacy  Lab  Physiotherapy

Group: A

Tick (v) the best answer.

- If  $A = \{1, 2, 3, 4\}$  and  $B = \{1, 3, 5\}$ , which of the following is true for  $A \cap B$ ?  
(a)  $\{1, 3\}$  (b)  $\{2, 4\}$  (c)  $\{1, 2, 3, 4, 5\}$  (d)  $\{5\}$
- Which of the following interval is open?  
(a)  $(0, 3)$  (b)  $(1, 4]$  (c)  $[-2, 2)$  (d)  $[-3, 3][ -3, 3]$
- What is *the* condition for a function  $y = f(x)$  have is inverse?  
(a) Injective (b) Subjective (c) Bijective (d) Many to One
- If  $\log_e a = 0$ , what is the value of  $a$ ?  
(a) 0 (b) 1 (c)  $e$  (d)  $\infty$
- What is the value of  $P(5, 2)$ ?  
(a) 10 (b) 20 (c) 30 (d) 40
- How many ways can 8 people be seated at a round table?  
(a)  $7!$  (b)  $8!$  (c)  $\frac{7!}{2}$  (d)  $4!$
- If  $\begin{pmatrix} x-y & 2 \\ 4 & x+y \end{pmatrix} = \begin{pmatrix} 1 & 2 \\ 4 & 3 \end{pmatrix}$ , what is the value of  $x$  and  $y$ ?  
(a) 1, 2 (b) 2, 1 (c) 0, 3 (d) 3, 0
- 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
- Which of the following is the equation of a line parallel to y-axis?  
(a)  $y = x$  (b)  $y = b$  (c)  $x = a$  (d)  $y = mx$

11. 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)  $h^2 - ab \neq 0$

12. 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

13. Which measure of central tendency is most affected by extreme values in a data set?

- (a) Mean    (b) Median  
(c) Mode    (d) Range

14. 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

15. 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  $+\infty$

16. 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

17. What is the main objective of research?

- (a) To guess solutions    (b) To solve problems  
(c) To generate new knowledge    (d) To dismiss theories

18. Which characteristic reduces the influence of personal bias in research?

- (a) Testability    (b) Objectivity  
(c) Generalizability    (d) Quantifiability

19. What is the final step in the scientific research process?

- (a) Data analysis  
(b) Testing the hypothesis  
(c) Preparing the research report  
(d) Reviewing the literature

20. What section of research report summarizes the entire study in brief?

- (a) Abstract    (b) Introduction  
(c) Methodology    (d) Conclusion

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