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V Semester B.C.A. Degree Examination, January/February- 2025

COMPUTER SCIENCE

Quantitative Techniques

(NEP Scheme Freshers+Repeaters)

Time : 2½ Hours

Maximum Marks : 60

Instructions to Candidates:

Answer all Sections.

SECTION - A

I. Answer any Four questions. Each question carries 2 marks. (4×2=8)

1. The number 89715938* is divisible by 4. The unknown non-zero digit marked as * will be?
2. In how many ways can a committee of four people be selected from ten people.
3. If $x + y = 23$ and $xy = 126$. What is the value of $x^2 + y^2$?
4. Find the simple interest on Rs. 20,000 for $4\frac{1}{2}$ years at 9% p.a.
5. Mention any one advantage and one disadvantage of online teaching over offline teaching.
6. Define Research. Mention any one research ethics.

SECTION - B

II. Answer any Four questions. Each question carries 5 marks. (4×5=20)

7. Arrange the following fractions

- (a) $\frac{17}{18}, \frac{31}{36}, \frac{43}{45}, \frac{59}{60}$ in ascending order (b) Find the HCF of $\frac{9}{10}, \frac{12}{25}, \frac{18}{35}, \frac{21}{40}$.

8. Find the difference between simple and compound interest on Rs. 10,000 in 5 years at 6% p.a.

[P.T.O.]

9. (a) If the word "ENGLISH", is written as "FHMFJRG", how would you write "COMPUTER" in the same code?
- (b) If HONEST is coded as NOHTSB and JOYFUL is coded as YOJLUF LOVING is coded as? Justify.
- (c) In a certain code, AIRLINE is written as ENILRIA7. How is RAILWAY written as? Justify.
- (d) If in a certain language, NOIDA is coded as OPJEB, how is DELHI coded in that language.
- (e) If the word "LAPTOP" is written as MBUQPU, how is "DESKTOP" written in the same code?
10. A father is 28 years older than the son. In five years, the fathers age will be 7 years more than twice that of son, find their present ages.
11. Write a note on evaluation system.
12. Briefly explain the different types of communication.

SECTION - C

III. Answer any Four questions. Each question carries 8 marks.

(4×8=32)

13. Simplify the following expressions

a) i. $\frac{3\sqrt{8} + 2\sqrt{18}}{\sqrt{2}}$

ii. $\frac{5}{\sqrt{3} + \sqrt{2}}$

(4)

b) i. A rectangle has a length of $\sqrt{144}$ units and a width of $\sqrt{81}$ units. Find its area.

(4)

ii. If the area of a square is 225 cm^2 . Find the length of its side.

14. a) $\log_2 \left(\frac{512 \times 256}{32} \right)$.

(2)

b) Evaluate ${}^{75}P_2 + {}^{75}C_2$.

(2)



- c) Two unbiased coins are tossed. What is the probability of getting at most one head? (2)
- d) Simplify
- i) $460 \times 15 - 5 \times 20$.
- ii) $1 \div [1 + 1 \div \{1 + 1 \div 1(1 + 1 \div 2)\}] + 1$ (2)
15. a) Draw a pie chart for the following data: item of expenditure 3750, 1875, 1875, 1200. (4)

Item of expenditure	Amount Spent (in Rs.)
Food	3750
Health	1875
Clothing	1875
Education	1200

- b) A train travels for 7 hours, the first half at 80km/hr and the second half at 90km/hr. Find the distance travelled. (4)
16. a) Three partners A, B, and C invest Rs. 1,600, Rs. 1,800, Rs. 2,300 respectively in a business. How should they divide the profit of Rs. 1,938. (4)
- b) A number is divided into 3 parts in the ratio 2:3:4. If the 3rd part is 20. What are the others? (4)
17. a) 8 men or 16 boys can do a work in 39 days. In how many days will 4 men and 18 boys do it? (4)
- b) Explain the essential steps involved in conducting a successful research study. (4)
18. a) Briefly explain the different learning styles. (4)
- b) Write a note on
- i) Seminar.
- ii) Conference. (4)
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$$\log_2 \left(\frac{512 \times 256}{32} \right) \quad (2)$$

b) Evaluate $75P_5 + 75C_5 \quad (2)$