

**PRE BOARD EXAMINATION 2019 MARCH**

Bachelor Level/First Year/I Semester Full Marks: 60

Bachelor in Computer Application (BCA) Pass Marks: 24

Mathematics I (CAMT104) Time: 3 Hours

Examination Date: 26th, Mar, 2019

*Candidates are required to give their answers in their own words as for as practicable.*

*The figures in the margin indicate full marks.*

**Group ‘B’**

**Attempt any SIX questions:**   **6×5 = 30**

11. In a group of students 24 study Math, 30 study Biology, 22 study physics, 8 study Math

Only, 14 study Biology only, 6 study Biology and Physics only and

2 study Math and Biology only. Find,

(a) How many study all three subjects?

(b) How many students were in the group?

12. From 3 men and 7 women a committee of 5 is to be formed. In how

Many ways can this be done so as to include at least one man?

13. (a) Find the multiplicative inverse of

(b) Rewrite -3≤x≤-2 by using the modulus sign.

14. Define bijective function. Show that f: RR defined by f(x) = 3x + 4 is bijective function.also find the inverse of f.

15. Define geometric sequence and geometric mean with examples. Find the sum to n terms of the series, 0.3 + 0.33 + 0.333 + ……….. to n terms.

16. Prove that: = (x – y)(y – z)(z – x).

17. Find the cross product and verify that it is orthogonal to both and = (1, -1, -1), = ( , 1, ).

**Group ‘C’**

**Attempt any TWO questions:** **2×10 = 20**

18. Define complex number, modulus of a complex and conjugate of complex number with examples. If z and w be two complex numbers, then prove that: |z+w|≤|z|+|w|

19. Define singular, non-singular, Adjoint and inverse of a matrix. Find the inverse of

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20. Define ellipse. Write the four different forms of an ellipse with examples. Show that 9x2 + 4y2 – 18x - 16y – 11 = 0 represents the equation of an ellipse.Find its Centre, vertices and foci.

\*THE END\*