

QP CODE: 20101082



Reg No : .....

Name : .....

**BBA DEGREE (CBCS) EXAMINATION, NOVEMBER 2020**

**Second Semester**

Bachelor of Business Administration

**Complementary Course - BA2CMT08 - MATHEMATICS FOR MANAGEMENT**

2017 ADMISSION ONWARDS

B2120E77

Time: 3 Hours

Max. Marks : 80

**Part A**

*Answer any ten questions.*

*Each question carries 2 marks.*

1. Find the distance between the origin and  $(-2, 3)$
2. Find the midpoint of the line joining  $(4, 3)$  and  $(2, 5)$
3. Find the centroid of a triangle whose vertices are  $(4, 0)$ ,  $(6, -3)$  and  $(5, -5)$
4. Equation of a straight line whose X- intercept = a and Y-intercept = b .
5. Slope of a straightline passing through the points  $(4, 5)$  and  $(2, 3)$ .
6. Find the point of intersection of pair lines  $3x - 4y = 1$  and  $3x + 4y = 17$
7. Which term of the series  $12, 9, 6, \dots$  is equal to  $-100$  . ?
8. Given the series  $2, 6, 18, 54, \dots$  Find the  $12^{\text{th}}$  term and  $n^{\text{th}}$  term ?
9. What sum of money will produce ₹ 75 as interest in 3 years at 5% per annum simple interest?
10. A machine costs ₹ 10,000 . Calculate its scrap value at the end of 10 years , depreciation on the reducing instalment system being charged at 10% per annum ?
11. Define annuity? Name any two annuities.
12. What principal will amount to ₹ 12,167 in 5 years at 4% per annum compound interest ?

(10×2=20)

**Part B**

*Answer any six questions.*

*Each question carries 5 marks.*

13. Prove that the points  $(3, 2)$ ,  $(11, 8)$ ,  $(8, 12)$ ,  $(0, 6)$  are the vertices of a rectangle.



14. Show that the following points  $(1,3), (2,7), (-2,-9)$  are collinear.
15. Express the equation  $3x - 4y + 2 = 0$  in the (i) intercept form (i) slope form.
16. Find the equation of the straight line perpendicular to  $2x + 3y + 4 = 0$  and passing through  $(3, -2)$ .
17. The sum of the first 11 terms of an AP is 19 and the sum of the first 19 terms is 11. Find the sum of the first 30 terms.
18. The sum of 3 numbers in GP is 35 and their product is 1000. Find the numbers?
19. What is the rate of interest per annum, if a sum doubles itself in 17 years at compound interest?
20. Find the present value and discount on ₹ 3,000 due in 4 years at 8% discount rate, discounted annually?
21. A buys a piece of land at ₹ 2,00,000 for which he agrees to make equal payments at the end of each year for 8 years. If money is worth 8% per annum, find the amount of each instalment?

(6×5=30)

### Part C

Answer any **two** questions.

Each question carries **15** marks.

22. (a) Show that the points  $(3,2), (6,3)$  and  $(4,11)$  are the vertices of a right angled triangle.  
(b) Show that the points  $(4,1), (3,4)$  and  $(2,1)$  are the vertices of an isosceles triangle.  
(c) Show the points  $(2,4), (2,6)$  and  $(2 + \sqrt{3}, 5)$  are vertices of an equilateral triangle.
23. (a) Find the equation of a straight line passing through the intersection of  $4x - 3y - 1 = 0$  and  $2x - 5y + 3 = 0$  and parallel to  $4x + 5y = 6$ .  
(b) For what value of  $a$  will the lines  $3x + 4y + 1 = 0$ ,  $ax + 2y - 3 = 0$ ,  $2x - y - 3 = 0$  be concurrent.
24. (a) Find the 14 arithmetic means which can be inserted between 5 and 8 and show that their sum is 14 times the arithmetic mean between 5 and 8?  
(b) Find the five numbers in AP such that their sum is 20 and the product of the first and the last terms is 15.
25. Sum to 'n' terms of the series (a)  $5 + 55 + 555 + \dots$   
(b)  $0.5 + 0.55 + 0.555 + \dots$

(2×15=30)