

TB145590A

Reg. No.....

Name.....

B. Sc. DEGREE(C.B.C.S.S.) EXAMINATION, OCTOBER 2016
SEMESTER V - OPEN COURSE (MATHEMATICS)
MAT5AM(O) - APPLICABLE MATHEMATICS

Time: Three Hours

Maximum Marks: 80

PART A

Short answer questions

I. Answer all questions. Each question carries 1 mark.

1. Find LCM of 72 and 126.
2. In which quadrant the point (2,-3) lies?
3. Find the derivative of $\cos(x+5)$
4. Find simple interest when principal is 800, rate of interest is 8% per annum for 4 years
5. Find the average of first 5 odd integers
6. Factorise $16x^2 - 9y^2 =$
7. Find square root of 1156
8. Find fourth proportional to the numbers 6,8,15.
9. Solve $x^2 - 5x + 6 = 0$
10. Find the sample space for the experiment the tossing of two coins. (10x1=10)

PART B

II. Answer any eight questions. Each question carries 2 marks.

11. Find the value of $P(24,2)$, permutation of 24 and 2.
12. After spending 85% of his income and giving 10% of the remainder in charity a man saves Rs 600/. Find his income.
13. Draw the graph of $x+2y=6$
14. Find two consecutive even natural numbers such that sum of their squares is 52.
15. From the top of a tree 100 m high, the angle of depression of a flower on the ground is 60° . Find distance of the flower from the bottom of the tree.
16. Find the derivative of $\tan x \cdot \sec x$
17. A distance of 800 m is covered in 30 minutes. Find the speed in km/hr.
18. Ram bought 240 toffees. He gave $\frac{1}{4}$ times of these to his sister and $\frac{7}{12}$ of the remaining to his younger brother. Find how many toffees are still with him?
19. Integrate the function x^5 with respect to x
20. If 192 mangoes can be bought for Rs 900, how many can be bought for Rs 1500
21. Find gain or loss % if $CP=500$ and $SP=565$
22. A card is drawn from a well shuffled deck of 52 cards. What is the probability that the card will be a black card. (8x2=16)

PART C

III. Answer any six questions. Each question carries 4 marks.

23. Evaluate $(xy)^{m-n} \cdot (yz)^{n-p} \cdot (zx)^{p-m}$
24. How many numbers lying between 100 and 1000 can be formed with the digits 1, 2,3,4,5 if the repetition of digits is not allowed.

25. A die is thrown, find the probability of the following events
 i) A number less than 5 appears
 ii) A prime number appears
26. Find the derivative of:
 i) $(3x+2)^4$
 ii) x^3+x^2-5x+4
27. The HCF and LCM of two numbers is 13 and 1989 respectively. If one of the two numbers is 117. Find the other.
28. A field is 60m length and 40m wide. Find ratio between its length and perimeter.
29. For every 12 mangoes that I buy 3 turn out to be rotten. At this rate, how many rotten mangoes will I have if I buy 100 mangoes .
30. Show 5309 and 3072 are prime to each other.
31. In how many years will Rs 950 produce Rs 399 as simple interest at 7%.

(6x4=24)

PART D

IV. Answer any two questions. Each question carries 15 marks.

32. 1) SP of ten articles is same as CP of 11 articles Find loss or profit %
 2) In a School 720 are boys and 40% are girls .Find the number of girls.
33. 1) A man covers a distance of 60 km at a speed of 40 km/hr and a distance of 50 km at a speed of 30 km/hr . Calculate his average speed for the whole journey.
 2) If 15 men can complete a work in 30 days, in how many days will 18 men complete it
34. 1) A bag contains 4 white balls, 3 black balls and 5 red balls. A ball is drawn at random. What is the probability that it is red.
 2) Find $\int_0^1 x^3 dx$
35. 1) A man observes the elevation of the top of the hill to be 30 degree . He walks 1000m nearer and finds the elevation to be 45 degree. Find the height of the hill.
 2) A cricket club has 15 members of which only 6 can bowl. In how many ways can an eleven be chosen to include at least 4 bowlers.

(2x15=30)