

Reg. No.....

Name.....

B.A./B.Sc./B.COM DEGREE END SEMESTER EXAMINATION OCTOBER 2017**SEMESTER – 5: MATHEMATICS (OPEN COURSE)****COURSE: 15U5OCMAT1: APPLICABLE MATHEMATICS***(For Regular 2015 admission)*

Time: Three Hours

Max. Marks: 75

PART AEach Question carries 1 Marks. Answer **All** Questions

1. Find the value of $\log_3 81$
2. Simplify $(x^2y)^{1/2}(x^3y^{-3})^{1/3}$
3. Evaluate $\sin 30 \cos 60 + \cos 30 \sin 60$
4. If $P(A) = \frac{3}{4}$, then find $P(A^c)$
5. Find the derivative of e^{3x}
6. Find the HCF of 513 and 783.
7. Simplify $21\frac{5}{8} - 13\frac{3}{5}$
8. Find the square root of $\frac{256}{441}$
9. The speed of a car is 54 Km/hr . What is its speed in m/sec ?
10. Find the area of a triangle if the base is 15cm and altitude is 8cm. (1 x 10 = 10)

PART BEach Question carries 2 Mark. Answer **Any Eight**

11. Solve the quadratic equation $2x^2 + 7x + 5 = 0$
12. Draw the graph of $y = 3x + 5$
13. Find the derivative of $\frac{e^x}{x^2}$
14. Evaluate $\int \tan x \, dx$
15. Two dices are thrown together. What is the probability that the sum of the numbers on the 2 faces is 7?
16. Find the mean of first 8 whole numbers.
17. Find the square root of 11025.
18. Find the gain or loss % if $CP = 500$ and $SP = 565$.
19. If 15 men can complete a piece of work in 30 days, how many days will 18 men complete it?
20. Find the area of a triangle whose sides are 10, 24 and 26. (2 x 8 = 16)

PART CEach Question carries 5 Marks. Answer **Any Five**

21. In how many ways can a committee of 3 men and 2 women be selected out of 7 men and 5 women?
22. The angle of depression of a ship from the top of the light house is 60° . If the ship is 100 meters apart from the light house, find the height of the light house.

23. Find the derivative of $x^2 \log 3x$
24. If two numbers are in the ratio 5: 7 and if 3 is subtracted from each of them, the ratio becomes 2: 3. Find the numbers
25. A bicycle is sold at a profit of 16%. Had it been sold for Rs 10 more, then profit would be 20%. Find its C.P
26. A sum of money doubles itself in 8 years. What is the rate of interest?
27. An aeroplane flies 750Km in 40 minutes. Find
- its speed in Km/hr
 - Time taken by it to cover a distance of 900 km. (5 x 5 = 25)

PART D

Each Question carries 12 Marks. Answer **any two**

- 28.
- Evaluate $\sin 90 \cos 60 - \cos 45 \sin 45$
 - Simplify $\frac{x^{2n+3}(x^3)^{n-1}}{x^{n+7}}$
29. Evaluate
- $\int \frac{1}{x(\log x)^2} dx$
 - Find the derivative of $\frac{a+b \cos x}{a-b \sin x}$
- 30.
- A man spends 92% of his monthly income. If he saves Rs. 220 per month what is his monthly income?
 - Find S.P when C.P= Rs.500, gain= 7%.
31. If 3 men or 4 women can reap a field in 43 days, how long will 7 men and 5 women take to reap it? (12 x 2 = 24)
