QP CODE: 19102575

Reg No : .....

Name : .....

UNDERGRADUATE (CBCS) EXAMINATION, OCTOBER 2019

Fifth Semester

(Offered by the Board of Studies in Mathematics)

Open Course - MM5OPT02 - APPLICABLE MATHEMATICS

2017 Admission Onwards

2B745899

Maximum Marks: 80 Time: 3 Hours

Part A

*Answer any **ten** questions.*

Each question carries 2 marks.

1. Express 29 as a fraction whose denominator is 12.
2. Find the ratio of 200 grams to 4 kg.
3. If the profit made on a packet of tea is Rs 4 and the the cost price of the packet is Rs 20, then how much is the profite percentage?
4. Solve $x(x-1) = 56$.
5. How many four digit numbers with no repetition of digits can be formed using the digits of the number 3672 ?
6. The angle of depression of a car from the top of a tower of height 40 metre is 30° .Find the distance of the car from the foot of the tower.
7. Find the simple interst on Rs 700 for 6 months at the rate 6 % per annum
8. Find the compound interest on Rs 12000 for 3 years at 10 % per annum compounded annually
9. Define exponential series.
10. Give an example of a cubic polynomial.
11. Differentiate $\frac{x}{\cos x}$
12. Differentiate $e^{\sin x}$.

(10×2=20)

Part B

Answer any six questions.

Each question carries 5 marks.

13. Find the smallest number by which 9408 must be divided so that it becomes a perfect square. Also find the square root of the perfect square so obtained.
14. Saritha secures 84% marks in Hindi paper. If the maximum marks in the paper are 150. Find the marks secured by her in the paper.
15. If $\sin x = \frac{3}{5}$ and x is acute then find $\cos x$, $\tan x$ and $\cot x$.
16. Evaluate $\frac{\tan 60° - \tan 30°}{1+\tan 60° \tan 30°}$.
17. If 5 men with 7 boys can earn Rs.3825 in 6 days, and 2 men with 3 boys can earn Rs.1050 in 4 days, In what time will 7 men with 6 boys earn Rs. 22500
18. a) A car travels at a speed of 84 km\hr. how many meters will it travel in one second
    b) A man walks 18 km in 4 hours . how much he will walk in 1 hour
19. Find the percentage increase in the area of a triangle if its each side is doubled.
20. Differentiate $(x-1)^2+2e^x$.
21. Differentiate $x^2e^x \sin x$.

(6×5=30)

Part C

Answer any two questions.

Each question carries 15 marks.

22. A) The sum of two numbers is seven times their difference. If the smaller number is 30. Find the other.
    B) Find the HCF and LCM of 624 and 936.
    C) The HCF and LCM of two numbers are 13 and 1989 respectively. If one of the number is 117 determine the other.
23. 1. Find the values of the following (i) ${}^{12}C_4 + {}^{10}C_5$ (ii) ${}^{10}C_2 \times {}^{9}C_3$.
    2. In how many ways a group of 7 members can be constituted from 8 men and 6 women so that the committee include (i) exactly 3 women (ii) at least 3 women (iii) at least 4 men.

24. a) Suneeta can do a piece of work in 15 days and Amitha can do it in 10 days.They start together, but two days later Amitha gives up the work and goes away. In how many days will Suneeta finish the remaining work.

b)Together Ravi and Suni do a piece of work in 4 days. Ravi alone can do it in 6 days, . In how many days can Suni alone do it.

25. Factorise the following: (i) $(x+1)^3+(x-1)^3$, (ii) x^3+3x^2+3x-7, (iii) $8x^3+27y^3+z^3-18xyz$.

(2×15=30)