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QP CODE: 22101925

Reg No :

Name :

**UNDER GRADUATE (CBCS) SPECIAL SUPPLEMENTARY EXAMINATIONS,
MAY 2022**

Fifth Semester

(Offered by the Board of Studies in Mathematics)

OPEN COURSE - MM5OPT02 - APPLICABLE MATHEMATICS

2019 Admission Only

383EF46F

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Find the square root of $\frac{625}{1296}$.
2. Find 20% less than Rs 70.
3. Find the gain or loss percent if CP = Rs 700 and SP = Rs 630.
4. Solve $x(x + 1) = 110$.
5. How many four digit numbers with no repetition of digits can be formed using the digits of the number 3672 ?
6. In how many ways 3 books can be chosen from 7 books ?
7. Find the principal if the simple interest is Rs 80 for 6 months at the rate 4% per annum
8. Seema weaves 25 baskets in 35 days. In how many days will she weave 110 baskets.
9. Define logarithmic series
10. Find the perimeter of an equilateral triangle whose area is $4\sqrt{3}cm^2$.
11. Differentiate $\frac{2x+3}{x^2-5}$
12. State function of a function rule for the derivative of functions.

(10×2=20)

Part B





Answer any **six** questions.

Each question carries **5** marks.

13. Five years ago sum of the ages of a father and his son was 40 years. Five years hence, the age of the father will be 3 times the age of his son. Find their present ages.
14. Divide Rs 1250 between Aman and Amil in the ratio 2 : 3.
15. Show that $\frac{\tan A - 1}{\sin A} = \operatorname{cosec} A - \sec A$.
16. A ladder when placed against a wall so that it makes an angle of 45° with the horizontal reaches to a height of 12 feet .The ladder is moved so that it makes an angle of 60° with the horizontal t.How heigh will the ladder reach now?
17. A and B undertook to do a piece of work for Rs. 37.50 . A alone could do it in 20 days and B in 30 days. With the assistance of C they finished it in 8 days. How should the money be divided.
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. Define monomials, binomials and trinomials with two examples.
20. Differentiate $5x^3 + 3 + 1/x^2$.
21. Diffrentiate $(x^2 - 4x + 5)(x^2 - 2)$

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.

22. A) One read $\frac{3}{8}$ of a book on one day and $\frac{4}{5}$ of the remainder on another day. If there now were 30 pages unread, how many pages did the book contains?
B) Express 5.6875 as a vulgar fraction.
23. 1. Evaluate the following :- (i) $(\operatorname{cosec} 45^\circ)^2 (\sec 45^\circ)^2 + (\sin 60^\circ)^2 (\cos 45^\circ)^2$
(ii) $\cos 60^\circ \cos 45^\circ + \sin 45^\circ \sin 30^\circ$.
2. Verify that (i) $\cos 60^\circ = \frac{1 - (\tan 30^\circ)^2}{1 + (\tan 30^\circ)^2}$ and (ii) $2 \sin 30^\circ \cos 30^\circ = \frac{2 \tan 30^\circ}{1 + (\tan 30^\circ)^2}$.





24. a) Rema deposited Rs.7500 for 6 months at the rate of 8 % interest compounded quarterly. Find the amount he received after 6 months
b) In what rate percent per annum , compound interest will Rs. 10000 amount to Rs.13310 in 3 years.
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)

