

## MATHS - RIMC 2024 QUESTION PAPER PDF BY INDIAN DEFENCE ACADEMY DEHRADUN

Q1. The sum of the digits of a two digit numbers is 13. The number obtained by interchanging the digit exceeds the given number by 27 Find the number.

Q2. Simplify :-  $(3^5 - 5 \times 10^5 - 5 \times 125) / (5^7 - 7 \times 6^5 - 5)$

Q3. The thickness of a metallic tube is 1 cm and the inner diameter of the tube is 12cm. Find the weight of 1 m long tube if the density of the metal is  $7.8 \text{ gm/cm}^3$ .

Q4. Divide:-  $44(x-5x^3-24x^2)$  by  $11x(x-8)$

Q5. The four angles of a quadrilateral are in the ratio of 3:5:7:9. Find the angles

Q6. On dividing a certain number by 342, we get 47 as a remainder. If the same number is divided by 18, what will be the remainder?

Q7. The LCM of two numbers is 9 times their HCF. The sum of HCF and LCM is 500

Q8. Observe the following pattern

$$1 - (1 \times (111))$$

$$1 + 2 = (2 \times \{2 (2+1)\})$$

$$1 + 2 + 3 = (3 \times \{3+1\})$$

$$1 + 2 + 3 + 4 = 14 \times (4-1)$$

Q9. The ratio of the number of girls to the number of boys in a school of 720 students is 3:5. If 18 new boys are admitted in the school, find how many new girls may be admitted so that the ratio of number of girls to the number of boys may change to 2:3?

Q.10. Factorise the following :-

1.  $x^2 - y^2 - 9z^2 + 6yz$

(b)  $3-12(a-b)^2$

Q11. Rohan has 3 times as many 2 rupee coins as he has 5 rupee coins. If in all she has a total of Rs 77/-, how many coins of each denomination does she have?

Q12. An equilateral triangle of each 4.18 cm is made of a wire. If the same piece of wire bent into a ring, find the diameter.

Q13. Find the least number which must be subtracted from 402 so as to get a perfect square. Also find the square root of the perfect square so obtained.

Q14.

Evaluate :-  $\sqrt[3]{968} + \sqrt[3]{1375}$

Q.15.

Q15. Divide the sum of  $\frac{65}{12}$  and  $\frac{12}{7}$  by their difference. Find the number.

Q16. Simplify  $(x-2x^2+3x-4)(x-1) - (2x-3)(x^2-x+1)$

Q17. 'A' can do a piece of work in 25 days and 'B' can finish it in 20 days. They work together for 5 days and then 'A' goes away. In how many days will 'B' finish the remaining work?

Q18. Find the least number which when increased by 8 is exactly divisible by 24, 32 and 36.

Q19. The ratio of volumes of two spheres is 1:8. Find the ratio of their surface areas

Q20. Using ruler and compass only, construct a quadrilateral ABCD in which AB = 3.5 cm, BC = 6.5 cm,  $\angle A = 75^\circ$ ,  $\angle B = 105^\circ$  and  $\angle C = 120^\circ$

Q21. In a certain language if 'INDIA' is coded as 'KMFHC', how will 'AMERICA' be coded?

**Q22.** A company packages its milk powder in a cylindrical container whose base has a diameter of 14 cm and height 20 cm. Company places a label around the surface of the container (as shown in the figure below). If the label is placed 2 cm from top and bottom, what is the area of the label?

**Q23.** At what rate percent simple interest will a sum of money will 5 amount to itself in 6 years and 8 months.

**Q24.** The value of a car depreciates every year by 10%. What will be its value after 2 years if its present value is Rs 50,000?

**Q.25** If  $p:q = 13$  and  $q:r = 3:4$  express  $p:q:r$  in simplest terms. Also find  $r:p$ .

**Q.26** The cost of 5 meters of a particular quality of cloth is 210. Tabulate the cost of 2, 4, 10 and 13 meters of cloth of the same type.

**Q.27.** Calculate the area of a triangle whose sides are 29 cm, 20 cm and 21 cm. Hence, find the length of the altitude corresponding to the longest side.

**Q.28.** In the above figure, PQRS is a parallelogram. T is the midpoint of PQ and ST Prove that.

(a)  $QR=QT$

(b) RT bisects  $\angle R$

(c)  $\angle STR=90^\circ$

**Q.29.** Abhishek has 3 times as many 2 rupee coins as he has 5 rupee coins. If in all she has a total of 77, how many coins of each denomination does he have?

**Q.30.** Three cubes of sides 3 cms, 4 cms and 5 cms are melted to make a new cube. Find the surface area of the new cube?