


RAN-2203080301060003
M. Sc. (Sem.-I) Examination November - 2025
Mathematics - Skill Based Elective Paper : Mathematics for Competitive Exam
Time: 2 Hours]
[Total Marks: 30
સૂચના : / Instructions

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Attempt any 30 questions out of the given 40 questions.
- (3) Each question carries a weightage of 1 mark.
- (4) Follow usual notations and conventions.
- (5) Use of non-programmable scientific calculator is permitted.

Seat No.:

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Student's Signature

- (1) Find the LCM of $\frac{6}{5}, \frac{8}{15}, \frac{32}{25}$.
- (2) H.C.F of two number is 11 and their L.C.M is 693. If one number is 77, then find the other.
- (3) If $\frac{3}{4}$ th of the difference of $2\frac{1}{4}$ and $1\frac{2}{3}$ is subtracted from $\frac{2}{3}$ rd of $3\frac{1}{4}$, then the answer is _____.
- (4) Simplify : $\sqrt{\left(\frac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.002}\right)}$
- (5) Arrange the fraction $5/8, 7/12, 13/16, 16/29, 3/4$ in their ascending order.
- (6) The body weight of six boys is recorded as 54 kg, 64 kg, 75 kg, 67 kg, 45 kg and 91 kg. What is the average body weight of all six boys?
- (7) If $\frac{3}{a} = \frac{18}{b} = \frac{24}{c} = \frac{9}{5}$ then find the value of $a + b$.
- (8) The average age of 30 boys in a class is 15 years. If the age of teacher is also included, then the new average age becomes 16 years. What is the age of teacher?
- (9) A mixture of a certain quantity of milk with 16 L of water is worth ₹ 0.75 per litre. If pure milk be worth ₹ 2.25 per litre, then how much milk is there in the mixture?
- (10) Average of class I to class V is 29. Average of class I to class III is 31. Then, average of class IV to class V is _____.
- (11) Of the three numbers, second is twice the first and is also thrice the third. If the average of three numbers is 44, what is the largest number?
- (12) If $x = 3 + 2\sqrt{2}$, then find the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$.
- (13) If $2^x = 3^y = 6^{-z}$, then find the value of $\left(\frac{1}{x} + \frac{1}{y} + \frac{1}{z}\right)$.

- (14) The ages of A and B are in the ratio 6:5 and the sum of their ages is 44 years. What will be the ratio of their ages after 8 years?
- (15) The age of Suman and Charu are in ratio 9:8 respectively. After 5 years, the ratio of their ages will 10:9. What is the difference in their ages?
- (16) The product of the ages of Ankit and Nikita is 240. If twice the age of Nikita is more than Ankit's age by 4 years, then find Nikita's age.
- (17) The ratio of the ages of Tapan and Rakesh is 9:10 respectively. Ten years ago, the ratio of their ages was 4:5 respectively. What is the present age of Rakesh?
- (18) If Ramesh can do a piece of work in 8 days and Suresh can complete the same work in 5 days, in how many days will both of them together complete it?
- (19) A missile travels at 1350 km/h. How many meters does it travel in one second?
- (20) To finish a certain job X takes twice as long as Y and Z together; and Z three times as long as X and Y together. If X, Y and Z working together complete the job in 6 days, how long would X take to complete the work alone?
- (21) Ajay can make a table in 3 days while Vinay can make it in 6 days. Ajay and Vinay together will make the table in _____ days.
- (22) In a regular week, there are 5 working days and for each day, the working hours are 8. A man gets Rs. 2.40 per hour for regular work and Rs. 3.20 per hours for overtime. If he earns Rs. 4320 in 4 weeks, then how many hours does he work for?
- (23) Ramesh walks 160m every day. How many kilometers will he walk in 4 weeks?
- (24) Two trains of equal length are running on parallel lines in the same direction at 46 km/h and 36 km/h. The faster train passes the slower train in 36 seconds. Then find the length of each train.
- (25) A person completes a journey in 10 hours, the first half at the rate of 21 km/hr and the second half at the rate of 24 km/hr. The total distance travelled is _____ kms.
- (26) Priya can cover a certain distance in 1 hr and 24 minutes by covering two-third of the distance at 4 kmph and the rest at 5 kmph. Find the total distance.
- (27) In how many ways, a committee of 6 members to be selected from 7 men and 5 ladies, consisting of 4 men and 2 ladies?
- (28) In how many different ways can the letters of the word 'PRESENT' be arranged.
- (29) In how many ways can the letters of the word 'MOMENT' be arranged?
- (30) Find the 4th proportional to 3, 7 and 9.
- (31) In an examination, 52% of the candidate failed in English and 42% failed in Mathematics. If 17% failed in both subjects, then what percentage candidate passed in both subjects?

- (32) A number, when 35 subtracted from it, reduces to its 80 percent. What is four fifth of that number?
- (33) At a clearance sale, goods were sold at a reduction of 20%. A student purchased a pen for Rs. 12 at the clearance sale. The usual price of the pen was Rs. _____ .
- (34) Saroj invest Rs.72,318, which is 17% of her annual income, in mutual funds. What is her monthly income?
- (35) Mansi purchased a car for ₹ 2,50,000 and sold it for ₹ 3,48,000. What is the percent profit she made on the car?
- (36) A sum of Rs. 2000 is divided among A, B and C such that A receives 25% less than C and C receives 20% less than B. What is A's share in the amount ?
- (37) The income of A and B are in the ratio of 5:7 and their expenditure are in the ratio of 3:5. If each save Rs. 1500, find the income of B.
- (38) A cone, a hemisphere and cylinder stand on equal bases and have the same height. Find the ratio of their volumes.
- (39) How many iron rods, each of length 7 m and diameter 2 cm can be made out of 0.88 cubic meter of iron?
- (40) The angle of elevation of the sun, when the length of the shadow of a tree is $\sqrt{3}$ times the height of the tree, is _____ .
- _____