

Skill Paper, Dept. of Mathematics

Paper Title : Quantitative Aptitude and Reasoning

Total Marks : 45

1. Answer the following questions :

1x5=5

(a) Which is greater : $\frac{13}{15}$ or $\frac{20}{23}$?

(b) Is 881 a prime number?

(c) What is the number in the unit place in $(729)^{59}$?

(d) Find the interest on ₹ 400 for 5 years at the rate of 6%.

(e) Find the fourth proportional to the numbers 6, 8 and 15.

2. Answer the following (any five)

2x5=10

(a) A man covers a certain distance between his house and office on scooter. Having an average speed of 30 km/hr he is late by 10 minutes. However with a speed of 40 km/hr, he reaches his office 5 minutes earlier. Find the distance between his house and office?

(b) In what time will ₹ 390625 amount to ₹ 456976 at 4% compound interest?

(c) Find the least number of 5 digits which is exactly divisible by 89.

(d) A batsman in his 17th innings makes a score of 85, and thereby increases his average by 3, what is his average after 17th innings?

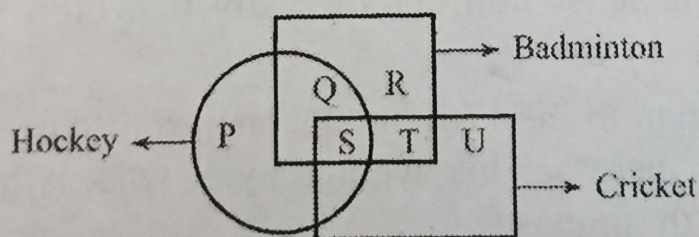
(e) A man purchases 8 pens for ₹ 9 and sells 9 pens for ₹ 8. How much profit or loss does he make?

(f) The average of 11 results is 50. If the average of first six results is 49 and that of last six is 52, find the sixth results.

(g) Find three numbers in the ratio 1:2:3, so that the sum of their squares is 504.

(h) Find the compound interest on ₹ 8000 at 10% per annum for 3 years.

- (i) Walking $\frac{3}{4}$ th of his usual speed, a person is 10 min late to his office. Find his usual time to cover the distance.
- (j) The simple interest on a sum of money is $\frac{1}{9}$ th of the principal, and the number of years is equal to the rate percent per annum. Find the rate per cent.
3. Answer the following questions (any four) 5x4=20
- (a) Arrange in ascending order the following. 5
 $\frac{3}{7}, \frac{4}{5}, \frac{7}{9}, \frac{1}{2}$ and $\frac{3}{5}$
- (b) If a person travels three equal distances at a speed of x km/hr, y km/hr and z km/hr respectively, find the average speed during the whole journey.
- (c) A, B, C, D are four quantities of the same kind such that $A:B = 3:4$, $B:C = 8:9$, $C:D = 15:16$
- (i) Find A : D
- (ii) Find A : B : C : D
- (d) The given diagram represents those people who play Hockey, Cricket and Badminton. See the diagram and answer the following.



- (i) Who play Cricket only.
- (ii) Who play both Cricket and Badminton.
- (iii) Who play both Badminton and Hockey
- (iv) Who play all the sports.
- (v) Who play Badminton only.
- (e) Ram walks 15 km to the West. Then he turns South and

walks 4 km. Again he turns to the East and walks 12 km. How far is he from his original position and also find the direction from his starting point.

- (f) What sum of money at compound interest will amount to ₹ 2249.52 in 3 years if the rate of interest is 3% for the first year, 4% for the second year and 5% for the third year.
- (g) A person sells an article at a profit of 10%. If he had bought it at 10% less and sold it for ₹ 3 more, he would have gained 25%. Find the cost price.
- (h) A sum of money at simple interest amounts to ₹ 600 in 4 years and ₹ 650 in 6 years. Find the rate of interest per annum.

4. Answer the following (any one)

1x10=10

- (a) (i) Read the following informations and answer the questions based on it. 5

I. 'P x Q' means "P is brother of Q"

II. 'P - Q' means "P is mother of Q"

III. 'P + Q' means "P is father of Q"

IV. 'P ÷ Q' means "P is sister of Q"

(a) How is M related to J in $N + J \div T \times M$?

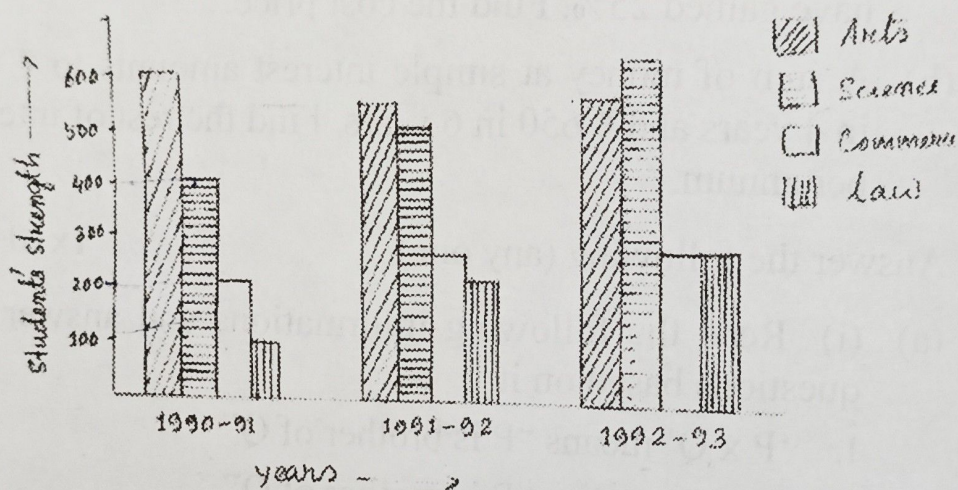
(b) How is F related to B in $B + J - F$?

(c) How is M related to N in $M \times R - N$?

- (ii) Study the following information to answer the given questions : 5

Eight persons E, F, G, H, I, J, K and L are seated around a square table – two on each side there are three lady members and they are not seated next to each other. J is between L and F, G is between I and F. H, a lady member is second to the left of J. F, a male member is seated opposite to E, a lady member. There is a lady member between F and I.

- (a) Find the three lady members
 (b) Who is seated between E and H?
 (c) Who is to the immediate left of F?
 (d) How many persons are related between K and F?
 (e) What is the position of J?
- (b) Shown below is the multiple bar diagram depicting the changes in the student's strength of a college in four faculties from 1990-91 to 1992-99. 10



Study the above graph and answer the questions.

- (i) Find the percentage of students in science faculty in 1990-91.
 (ii) Find the percentage of students in law faculty in 1992-93.
 (iii) During which year the strength of Arts faculty was minimum and maximum?
 (iv) How much percent was the increase in science students in 1992-93 over 1990-91?
 (v) How many times the total strength was of the commerce students in 1991-92 ?
- (c) (i) The rate of interest for the first 2 years is 3% per annum, for the next 3 years is 8% per annum and for the period beyond 5 years 10% per annum. If a man gets ₹ 1520 as a simple interest for 6 years, how much money did he deposit?

- (ii) Divide ₹ 2379 into three parts so that their amounts after 2, 3 and 4 years respectively may be equal, the rate of interest being 5% per annum. 4
- (iii) The compound interest on a certain sum of money for 2 years at 10% per annum is ₹ 420. Find the simple interest at the same rate and for the same time. 2
- (d) (i) The ratio of father's age to the son's as is 4:1. The product of their ages is 196. What will be the ratio of their ages after 5 years? 3
- (ii) What least number must be added to 8961 to make it exactly divisible by 84? 2
- (iii) Find the least 5 digit number which is exactly divisible by 89. 2
- (iv) Walking $\frac{3}{4}$ th of his usual speed, a person is 10 min late to his office. Find the usual time to cover the distance. 3

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