__Duration: 2 hours__   __Total Marks: 60 marks__

Instructions:

- **Start each question on a fresh page.**
- **Figures to the right indicate maximum marks.**
- **Use of non-scientific, non-programmable calculators is allowed.**

Q 1. Answer each of the following: **03×04=12 Marks**

i) Define duplicate, sub-duplicate and compound ratios.

ii) State whether true or false:
 a) Time taken by minute hand to complete one rotation is one hour.
 b) Time taken by hour hand to complete one rotation is 60 minutes.
 c) The angle covered by second hand in 60 seconds is 360°.

iii) If the speed of the boat in still water is x Km/h and speed of the stream is y Km/h, then recall:
 a) speed downstream
 b) speed upstream
 c) speed of the boat in still water in terms of speed downstream and speed upstream.

iv) Define partnership and recall types of partnerships.

Q 2. Answer <u>any four</u> the following: **03×04=12 Marks**

i) Recall the definition of mixture and mean price. Also state the rule of mixture.

ii) Define work and state the formula to compute the ratio of wages of A and B if they can complete a certain work in x and y days respectively.

iii) Recall the three basic formulas related to speed, distance and time.

iv) If the ratio of the present ages of A and B is $x{:}y$, then recall the formulas for the ratio of their ages 'n' years ago and after 'm' years.

v) Recall the following:
 a) The time period in which both hour hand and minute hand coincide.
 b) The angle by which the minute hand moves faster as compared to the hour hand.
 c) The number of odd days in an ordinary year.

vi) Recall the present worth, amount and true discount.

Q 3. Answer any three of the following: **04×03=12 Marks**

i) a) Estimate the final value of $\frac{2}{7} = \frac{6}{21}$ by using componando and dividando

 b) Identify the value of α if :
 $$\frac{5}{3} = \frac{20}{12} = \frac{25}{15} = \alpha$$

ii) Two pipes A and B can fill a tank in 18 hours and 6 hours respectively. If both the pipes are opened simultaneously, estimate the time taken to fill the tank.

iii) A person covers a certain distance with a speed of 25 m/s in 90 seconds. If he wants to cover the same same distance in 1 minute, estimate his required speed.

iv) A can finish a work in 15 days, B in 20 days and C in 25 days. Working together they earn Rs. 4700. Estimate the share of C.

Q 4. Answer any three of the following: 04×03=12 Marks

i) Estimate the present worth if the amount due after 3 years at interest rate 8% per annum is Rs. 3720. Also estimate the true discount.

ii) If 12 men can finish a work in 20 days then estimate the number of days required to complete the same amount of work by 15 men.

iii) The sum of present ages of Varun and Kapil is 42 years. The ratio of their ages after 5 years will be 15:11. Estimate the present age of Kapil.

iv) 150m long train, running with a speed of 90 Km/h crosses a bridge in 26 seconds. Estimate the length of the bridge.

Q 5. Attempt each of the following: 06×02=12 Marks

i) Karan starts a business with Rs. 9000 and Rajesh joins him after 6 months with an investment of Rs. 45000. Compute the ratio of profits of Karan and Rajesh at the end of the year. Also calculate the share of Karan in the profit if the total profit is Rs. 160000.

ii) Keshav can row 60 Km downstream and 36 Km upstream, taking 10 hours each time. Calculate the speed of Keshav and also the speed of the river.

THE END