

M.E.S. VASANT JOSHI COLLEGE OF ARTS AND COMMERCE, ZUARINAGAR – GOA
B.Com. (NEP) I Semester End (Regular & Repeat) Assessment, November, 2024
MC –MATHEMATICAL TECHNIQUES IN COMPETITIVE EXAMS (MAT-131)

Instructions: i) *All questions are compulsory.*

ii) Figures to the right indicate full marks.

iii) Use of simple (non-scientific) calculator is allowed.

Time: 02 Hours

Total Marks: 60

Q 1. Answer each of the following:

03 × 04 = 12 Marks

- i. Define (a) Partnership (b) Sleeping Partner (c) Active Partner
- ii. If a pipe fills a tank in m hour and another pipe fills the tank in n hour then what is the part filled by both the pipes? Also find the same when m=2 hour and n= 6 hour.
- iii. Find the 4th proportional to 3, 7 and 9. Also give an example of inverse ratio.
- iv. State whether the following statement is true or false. Also justify your answer.
 - a. If 9th August 2013 is Friday then 9th August 2014 will be a Saturday.

Q 2. Answer any four of the following:

03 × 04 = 12 Marks

- i. A container has milk and water in the ratio a : b , a second container has milk and water in the ratio c : d. If both the mixtures are emptied into a third container then what is the ratio of milk to water in the third container?
- ii. Define Mixture. In what ratio must rice at Rs 9.30/kg be mixed with rice at Rs 10.80/kg so that the mixture must be worth of Rs 10 per kg?
- iii. A can do a piece of work in 9 days and B can do the same work in 15 days. If they work together, in what ratio A and B will receive their wages?
- iv. At what time between 7 O'clock and 8 O'clock, will the hands of a clock be in the same straight line but not together?
- v. Ravi can row downstream at 9 km/hr and upstream at 5 km/hr. Find the speed of Ravi in still water and speed of the stream.
- vi. The present worth of Rs. 1860 due 3 years hence at 8% rate of interest p.a is Rs. 1500. The True discount is given by
 - a. Rs. 320
 - b. Rs. 360
 - c. Rs. 400
 - d. Rs. 460

Q 3. Answer any three of the following:

04 × 03 = 12 Marks

- i. If two numbers are in the ratio 2 : 3 and if 7 is subtracted from each of them, then the new numbers will be in the ratio 5 : 11. Find the original numbers.
- ii. Three pipes m, n and p can fill a tank separately in 4, 5 and 10 hr respectively. Find the time taken by all the three pipes to fill the tank when the pipes are opened together.
- iii. A alone can finish a work in 2 days, while B alone can finish it in 3 days. If they work together to finish it, then out of total wages of Rs.6000, what will be the 20% of A's share?
- iv. A person covers a distance of 12 km while walking at the speed of 4km/hr. How much distance will he cover in same time, if the walking speed is 6km/hr?

Q 4. Answer any three of the following:

04 × 03 = 12 Marks

- i. A starts a business with Rs.4000 and B joins the business 4 months later with an investment of Rs.5000. After 1 year they earn a profit of Rs.22,000. Find the share of A and B.
- ii. A person covers a distance of 20 km by bus in 35 min. After deboarding the bus, he takes rest for 20 min and covers another 10 km by a taxi in 20 min. Find his average speed for the whole journey.
- iii. The present ages of Amit and his father are in the ratio 2 : 5 respectively. Four years hence, the ratio of their ages becomes 5 : 11 respectively. What was the fathers age 5 years ago?
- iv. Two trains are moving in opposite direction with speeds of 14 km/hr and 28 m/s, respectively. Find their relative speed.

Q 5. Answer each of the following:

06 × 02 = 12 Marks

- i. What will be the angle between the hour hand and the minute hand at 9.50 P.M?
- ii. 12 men can do a work in 10 days, while 10 women can do the same work in 18 days. In how many days 4 men and 6 women together can do the same work?