



**III Semester M.C.A. (Two Years Course) Degree Examination, May 2024
(CBCS) (2021 – 22)**

COMPUTER SCIENCE

3MCA2 : Quantitative, Teaching and Research Aptitude

Time : 3 Hours

Max. Marks : 70

Instruction : Answer **any five** questions from Section – **A** and **any four** questions from Section – **B**.

SECTION – A

Answer **any five** questions. **Each** question carries **six** marks.

(5×6=30)

1. Find the H.C.F. and L.C.M. of $\frac{2}{3}$, $\frac{8}{9}$, $\frac{16}{81}$ and $\frac{10}{27}$.
2. The age of father 10 years ago was thrice the age of his son. 10 years hence father's age will be twice that of his son. Find the ratio of their present ages.
3. A Man spends $\frac{2}{5}$ of his salary on house rent, $\frac{3}{10}$ of his salary on food and $\frac{1}{8}$ of his salary on conveyance if he has \$1400 left with him, find his expenditure on food and conveyance.
4. Divide \$1050 among A, B and C such that A receives $\frac{2}{5}$ as much as B and C together and B receives $\frac{3}{7}$ as much as A and C together.
5. At what time between 4 and 5 o'clock will the hands of a clock be at right angle ?
6. Explain the learner's characteristics in teaching.
7. A man divides 8,600 among 5 sons, 4 daughters and 2 nephews. If each daughter receives five times as much as each nephew and each son receives four times as much as nephew, how much does each daughter receive ?
8. Define Research. Explain the types of research in details.



SECTION – B

Answer **any four** questions. **Each** question carries **ten** marks.

(4×10=40)

9. a) A, B and C enter into a partnership with capitals in the ratio $7/2 : 4/3 : 6/5$. After 4 months A increases his share of capital by 50%. If at the end of the year the total profit earned is \$2430, find the share of each in the profit.
- b) How many arrangements can be made out of the letters of the word 'ENGINEERING' ?
10. a) A can complete a work in 10 days, B in 12 days and C in 15 days. All of them began the work together, but A had to leave the work after 2 days of the start and B, 3 days before the completion of the work. How long did the work last ?
- b) A man on the top of a tower, standing on the seashore, finds that a boat coming towards him takes 10 minutes for the angle of depression to change from 30 degree to 60 degree. Find the time taken by the boat to reach the shore from his position.
11. a) A person reaches his destination 40 minutes late if his speed is 3 km/hr, and reaches 30 minutes before time if his speed is 4 km/hr. Find the distance of his destination from his starting point.
- b) A man can row 6 km/hr in still water. It takes him twice as long to row-up as to row-down the river. Find the rate of stream.
12. a) Briefly explain the factors affecting the teaching.
- b) Define communication. Explain Barriers in effective Communication.
13. a) Prove that the calendar for the year 2003 will serve for the year 2014.
- b) The minute hand of a clock overtakes the hour hand at intervals of 65 minutes of the correct time. How much a day does the clock gain or lose ?
14. a) Define Thesis Writing, its characteristics and format.
- b) Write a short note on :
- Formal and Distance Education.
 - Value Education.