PG – 453

III Semester M.C.A. Degree Examination, January 2017
(CBCS Scheme)
COMPUTER SCIENCE
MCA – 307 : SC : Quantitative Teaching and Research Aptitude

Time : 3 Hours Max. Marks : 70

Instruction : *Answer **5** questions from Part – **A** and answer **4** questions from Part – **B**.*

SECTION – A

Answer **any five** questions. **Each** carries **six** marks. **(5×6=30)**

1. A bag contains 4 white and 6 red balls. Two draws of one ball each are made without replacement. What is the probability that one is red and other white ?
2. A and B can do a piece of work in 12 days, B and C in 15 days, C and A in 20 days. How long would each take separately to do the same work ?
3. The ratio of Rita's age to the age of her mother is 3 : 11. The difference of their ages in 24 years. What will be the ratio of their ages after 3 years ?
4. A train passes by a stationary man standing on the platform in 7 seconds and passes by the platform completely in 28 seconds. If the length of the platform is 330 meters, what is the length of the train ?
5. The angle of elevation of the top of a tower at a point on the ground is 30 degree. On walking 24 m towards the tower, the angle of elevation becomes 60 degree. Find the height of the tower.
6. Discuss the factors affecting teaching.
7. What are the steps involved in Research ?
8. What is distance education ? Discuss advantages of distance education.

P.T.O.

SECTION – B

Answer **any four** questions. **Each** carries **ten** marks. (4×10=40)

9. a) If 10th June 2001 is Saturday, then what day of week is 10th June 2004 ? 5

   b) Two taps A and B can fill a cistern in 12 and 16 minutes respectively. Both taps are opened together, but 4 minutes before the cistern is full, A is closed. How much time will the cistern take to fill ? 5

10. a) A car travels a distance of 170 km in 2 hours partly at a speed of 100 km/h and partly at 50 km/h. Find the time it travels at a speed of 100 km/h. 5

    b) The average weight of 15 students in a class increases by 1.5 kg when one of the students weighing 40 kg is replaced by a new student. Find the weight of the new student. 5

11. a) A man rows, 10 km upstream and back again to the starting point in 55 min. If the speed of the stream is 2 km/h, find the speed of rowing in still water. 5

    b) A teak tree was planted three years ago. The rate of its growth is 30% per annum. If at present, the height of the tree is 670 cm, what was its height when it was planted ? 5

12. a) The annual income of Ram and Shyam are in the ratio of 5 : 7 and their expenditure is in the ratio of 2 : 3. If at the end of the year both save Rs. 1,000 each, find Ram's annual income. 5

    b) A machine is sold for Rs. 5,060 at a gain of 10%. What would have been the gain or loss percentage if it had been sold for Rs. 4,370 ? 5

13. a) Write short notes on : 4

       i) Seminar

       ii) Conference

    b) What is research aptitude ? State its characteristics. 6

14. What are the requirements of good teaching ? Discuss the characteristics of a good teacher and students. 10

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