



PG – 268

III Semester M.C.A. Examination, January 2016
(CBCS)
COMPUTER SCIENCE
MCA – 307 : Quantitative, Teaching and Research Aptitude

Time : 3 Hours

Max. Marks : 70

SECTION – A

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

1. A train starts full of passengers. At the first station, it drops one-third of the passengers and takes 280 more. At the second station, it drops one-half of the new total and takes 12 more. On arriving at the third station, it is found to have 248 passengers. Find the number of passengers in the beginning.
2. Abhay's age after six years will be three-seventh of his father's age. Ten years ago, the ratio of their ages was 1 : 5. What is Abhay's father's age at present ?
3. How many words can be formed from the letters of the word "EXTRA", so that the vowels are never together ?
4. A dealer sold three-fourth of his articles at a gain of 20% and the remaining at cost price. Find the gain earned by him in the whole transaction.
5. A and B undertake to do a piece of work for Rs. 600. A alone can do it in 6 days while B alone can do it in 8 days. With the help of C, they finish it in 3 days. Find the share of each.
6. Discuss the various types of research and their features.
7. Explain the different types of communication.
8. Differentiate between formal education and distance education in India.

P.T.O.



SECTION – B

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

(4×10=40)

9. a) Two dice are thrown together. What is the probability that the sum of the numbers on the two faces is divisible by 4 or 6 ? 5
- b) Simplify $\left(\log \frac{75}{16} - 2 \log \frac{5}{9} + \log \frac{32}{243} \right)$. 5
10. a) A train 150 m long is running with a speed of 68 kmph. In what time will it pass a man who is running at 8 kmph in the same direction in which the train is going ? 5
- b) A man takes 3 hours 45 minutes to row a boat 15 km down stream of a river and 2 hours 30 minutes to cover a distance of 5 km upstream. Find the speed of the river in current in km/hr. 5
11. a) Ajay borrowed some money at the rate of 6% p.a. for the first two years, at the rate of 9% p.a. for the next three years and at the rate of 14% p.a. for the period beyond five years. If he pays a total interest of Rs. 11,400 at the end of nine years, how much money did he borrow ? 5
- b) Two pipes A and B can fill a tank in 36 hours and 45 hours respectively. If both the pipes are opened simultaneously, how much time will be taken to fill the tank ? 5
12. a) What was the day of the week on 16th July, 1776 ? 5 ✓
- b) Of the three numbers, second is twice the first and is also thrice the third. If the average of the three numbers is 44, find the largest number. 5
13. Define teaching. Explain briefly the nature of teaching aptitude.
14. a) Explain governance policy and administration of higher education system in India. 6 ✓
- b) Define the following terms : 4 ~
- i) article
- ii) workshop.