M.C.A. I Semester Supplementary Examinations June 2018
Computer Programming

Max. Marks: 60   Time: 3 Hours
Answer all five units by choosing one question from each unit (5 x 12 = 60 Marks)
****

UNIT–I

1. a) What is Algorithm? Explain different types of algorithms?   6M

    b) Give brief description of history of programming languages   6M

OR

2. a) What are Control Structures in c language? Explain different types of control structures?   6M

    b) What are arrays? Differentiate between single dimensional and multi-dimensional arrays with a suitable example?   6M

UNIT–II

3. a) Explain String handling mechanism in c language with suitable examples?   5M

    b) Write a c program to check whether the given string is palindrome or not?   7M

OR

4. a) What are Functions? Explain the advantages of using functions?   6M

    b) Explain Call by reference mechanism of functions with a suitable example   6M

UNIT–III

5. a) What is Object Oriented Programming Paradigm? Explain the characteristics of Object oriented Programming paradigm?   6M

    b) Draw and Explain basic structure of C++ program?   6M

OR

6. Write a CPP program to add two number using Pure Virtual Functions   12M

UNIT–IV

7. a) What are Constructors and Destructors? Explain the properties of a Constructor? 7M

    b) Define Inline functions? Explain the advantages and disadvantages of inline functions?   5M

OR

8. a) Explain function overloading and overriding concepts of c++ with a suitable example?   7M

    b) Explain static binding and early binding?   5M

UNIT–V

9. a) Explain C++ Stream Classes and Hierarchy   6M

    b) Write a Simple CPP program for read and write a file   6M

OR

10. a) Explain Exception handling model in C++   6M

    b) Explain various file operators   6M

***

M.C.A. I Semester Supplementary Examinations June 2018
Probability and Statistics
Max. Marks: 60   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 12 = 60 Marks)
****

UNIT–I

1. a) State the axioms of probability.   4M

    b) A random variable X has the following probability distribution.

X	1	2	3	4	5	6	7	8
f(X)	K	2K	3K	4K	5K	6K	7K	8K

Find the value of i. K   ii. Mean   iii. Variance   iv. P(X 2)   v. P(2 X 5)   8M

OR

2. a) State and prove Baye's Theorem.   4M

    b) In a bolt factory machines A, B, C manufacture 20%, 30% and 50% of the total of the output and 6%, 3% and 2% of the defective. A bolt is drawn at random and found to be defective. Find the probabilities that it is manufactured from (i) machine A and (ii) machine B.   8M

UNIT–II

3. Show that Mean and Mode of a normal distribution are same.   12M

OR

4. In a test on 2000 electric bulbs it was found by the life of a particular make was normally distributed with an average of life of 2040 hours and standard deviation of 60 hours. Estimate the number of bulbs likely to burn for (i) more than 1920 hours but less than 2160 hours (ii) less than 1950 hours and (iii) more than 2150 hours.   12M

UNIT–III

5. Consider all possible samples of size two drawn from the population 1, 5, 6 and 8 with replacement. Calculate (i) Mean of the population (ii) Standard deviation of the population (iii) Sampling distribution of Means (iv) Mean of Sampling distribution of Means (v) Standard deviation of Sampling distribution of Means. Verify the results.

OR

6. a) Find 95% confidence limits for the mean of a normality distribution population from which the following sample was taken 15, 17, 10, 18, 16, 9, 7, 11, 13, 14.   6M

    b) 400 articles from a factory are examined and 3% are found to be defective. Construct 95% confidence interval.   6M

UNIT–IV

7. a) Explain type-I and type-II errors and testing of null hypothesis.   6M

    b) A random sample from a company's very extensive files shows that the orders for a certain kind of machinery were filed, respectively in 10, 12, 19, 14, 15, 18, 11 and 13 days. Use the level of significance α=0.01 to test the claim that on the average such orders are filed in 10 days.   6M

OR

8. To examine the hypothesis that the husbands are more intelligent than the wives, an investigator took a sample of 10 couples and administered them a test which measure the IQ as follows: test the hypothesis with a reasonable test at the level of significance of 0.05.

Husbands	117	105	97	105	123	109	86	78	103	107
Wives	106	98	87	104	116	95	9	69	108	85

12M

UNIT–V

9. The following is the distribution of hourly number of trucks arriving at company's warehouse;

No. of Trucks	0	1	2	3	4	5	6	7	8
Frequency	52	151	130	102	45	12	5	1	2

Find the Mean of this distribution, and using it as parameter λ, fit a Poisson distribution. Test for goodness of fit at the 0.05 level of significance.   12M

OR

10. The following data represents the monthly sales (in Rs) of a certain retail store in a leap year. Examine if there is any seasonality in the sales 610, 560, 635, 605, 625, 620, 630, 625, 580, 600, 615 and 615.   12M

****