1507E0201   Candidate's Seat No :_____

M.C.A. (Sem.-3) Examination
System Software

Time : 3-00 Hours]   July 2019   [Max. Marks : 50

NOTE : (1) Write both the sections in the separate answer books
        (2) Figures to the right indicate full marks.
        (3) Make necessary assumptions wherever necessary.

SECTION-I

Q.1   **Define the following (Any three)**   [9]
  [a] Location Counter
  [b] Symbol Table
  [c] IC
  [d] Declarative statement
  [e] Base register

Q.2 [a] Differentiate between application and execution domain.   [4]
     [b] Differentiate between interpreter and compiler.   [4]
                              OR
Q.2 [a] Explain cross reference table.   [4]
     [b] Explain FAR and NEAR procedure call.   [4]

Q.3   **Attempt the following.**   [8]
  [a] Give intermediate code representation for an expression using postfix, triple and quadruples.
                              OR
  [a] Explain instruction format of 8088.

SECTION-II

Q.4   **Define the following (Any three)**   [9]
  [a] DFA
  [b] Pure and impure interpreters
  [c] Segment register
  [d] Target program

Q.5 [a] Explain types of loaders.   [4]
     [b] Write an algorithm for recursive decent parser.   [4]
                              OR
Q.5 [a] Define following instructions: PUBLIC and EXTERN   [4]
     [b] Explain different types of editors.   [4]

Q.6   **Explain the following.**   [8]
  [a] Top down parsing without backtracking.
                              OR
  [a] Advanced macro facilities   [8]

1607E206

Candidate's Seat No :_____

M.C.A. (Sem.-3) Examination
Computer Oriented Statistical Methods
July 2019

Time : 3-00 Hours]

[Max. Marks : 50

Section I

Q1. What are the different types of data sources? Explain different scales of measures. Give difference between : [9]
- (i) Quantitative & Quantitative Data
- (ii) Cross-Sectional & time series data
- (iii) Histogram & Bar Chart

Q2. a) For the following data values computer 20th percentile, variance, range and standard deviation [4]
b) 97, 85, 20, 15, 38, 74, 108, 2
c) For the following data on hours of sleep and marks obtained by a student, find covariance and correlation coefficient. What is your interpretation? [4]

Sleep hours	6	8	10	2	1	0	9	12	7	9
marks	76	82	98	54	76	23	77	86	65	55

Q3. a) The time between arrivals of vehicles at a particular intersection follows an exponential probability distribution with a mean of 20 seconds. [8]
- i. Sketch this exponential probability distribution.
- ii. What is the probability that the arrival time between vehicles is 12 seconds or less?
- iii. What is the probability that the arrival time between vehicles is 6 seconds or less?
- iv. What is the probability of 30 or more seconds between vehicle arrivals?

b) Consider the following hypothesis test:

$$H_0 : \mu = 200$$
$$H_a : \mu \neq 200$$

- i. A sample of 80 is used. Identify the p-values and state your conclusion for $\bar{x} = 205$ and $s = 11.5$

Use $\alpha = 0.05$.

OR

c) Consider the following hypothesis test:

$$H_0 : \mu_1 - \mu_2 = 0$$
$$H_a : \mu_1 - \mu_2 \neq 0$$

The following results are two independent samples taken from the two populations.

Sample 1	Sample 2
$n_1 = 80$	$n_2 = 70$
$\bar{x}_1 = 104$	$\bar{x}_2 = 106$
$\sigma_1 = 8.4$	$\sigma_2 = 7.6$

- i. What is the value of the test statistics?
- ii. What is the p-values?
- iii. With $\alpha = 0.05$, what is your hypothesis testing conclusion?

P. T. O.

Q4.   Explain **any one** non-parametric method for hypothesis testing with the help of a suitable   **[9]**
case study

     a) Sign   b) Wilcoxon Signed Rank Test   c) Kruskal Walis Test

Q5.   **(a)** Why Sampling is required? What are different types of sampling methods?   **[4]**

    (b) Solve   **[4]**

        1) A population has a mean of 100 and a standard deviation of 10. A simple random
sample of size 100 will be taken and the sample mean $\bar{x}$ will be used to estimate the
population mean.

            a. What is the expected value of $\bar{x}$?

            b. What is the standard deviation of $\bar{x}$?

            c. Plot sampling distribution of $\bar{x}$.

<div align="center">

OR

</div>

        1) A simple random sample of 50 items from a population with $\sigma = 6$ resulted in a   **[4]**
sample mean of 32.

            a. Find margin of error.

            b. With 90% confidence interval, find interval estimate of population mean.

Q6.   Explain forecasting and its components.   How is smoothing by moving average done?   **[8]**

<div align="center">

OR

</div>

(b) Gross revenue data for Regional Airlines for a 10 years period is as follows.   **[8]**

Year	Revenue	Year	Revenue
1	2428	6	4264
2	2951	7	4738
3	3533	8	4460
4	3618	9	5318
5	3616	10	6915

            a. Develop a linear trend equation for this time series. Comment on what the
equation tells about gross revenue for Regional Airlines for 10 year period.

            b. Provide the forecasts for gross revenue for years 11 and 12.

1707E211   Candidate's Seat No :_____

M.C.A. (Sem.-3) Examination
Client Server Architecture and Interfaces

Time : 3-00 Hours]   July 2019   [Max. Marks : 50

Instructions:
1) Answer each section in separate answer book.
2) Number to the right indicates full mark of the question.
3) Assume suitable data whenever necessary.

SECTION – I

Q-1   Attempt the following   9
1.   Write the functions of CLR.
2.   Explain with example following terms:
      (i) Preserve (ii) optional arguments (iii) Named Arguments
3.   Explain the use of output window, Command Window and Immediate window of VB IDE.

Q-2   Attempt any two   8
1.   What do you mean by enumeration? How can one create custom enumeration?
2.   Explain CrystalReport Viewer and Crystal ReportDocument giving suitable examples.
3.   What do you mean by Abstract Class? Which keyword you must use to create an Abstract Class? Are all the properties and methods in the abstract class must be overridden in derived class? Is it compulsory that an abstract class has to contain only abstract properties and methods?

Q-3   Attempt the following   8
Create a class name Bank having properties :
ACNO, CustName, CustAddress, and AmtBalance.
Write methods for transaction Credit or Debit amount using AmtBalalnce.
The amount will be passed as argument for transaction.
After successful transaction a message will be displayed to show current balance.
Draw GUI and write appropriate code for making transaction.
OR

Q-3   Attempt the following   8
The Vendor database has table Vendor(VID,VName,VCity).
Write a VB 2008 Database application using Disconnected Data Access which provides Select and delete functionality.
You have dropdown list control to display Vname. And textboxes to display VID, VCity.
Draw GUI and Write appropriate code.

P. T. O.

1

SECTION – II

Q-4   Attempt the following (any three)   9
1.   Explain with diagram: How an ASP.NET page is compiled?
2.   Differentiate Instance and Shared Methods with example.
3.   List and differentiate various types of Cascading Style Sheet.
4.   Explain following HTML tags with appropriate example.
        i. a ii. div iii. Select

Q-5   Attempt the following   8
1.   You have IPL database with following table.

        TeamMaster(<u>TeamID</u>, TeamName, OwnerName, Price)

        Write a program to display IPL Team Name in drop down list box at runtime from
        the database. When the user select particular Team from the drop down list that
        Team information display in text box using **Direct Data Access technique.** Also
        write code for Insert new team.
        You have different textbox for insert new team data. Use textbox value as a
        parameter.

                                            OR

Q-5   Attempt the following   8
        Create a class Complex Number which consist of a real part and an imaginary part as
        its property and overload the following binary operators in VB.
        +, -, * , /

Q-6   Attempt the following (any four)   8
1.   What is Master page? What is the benefit of use Master Page in the application?
2.   Explain any one ASP.NET validation controls with appropriate example.
3.   What do you mean by state? Write any two technique name to maintain state.
4.   What do you mean by postback? Explain the functionality of postback using
        appropriate example.
5.   List and briefly explain any two attributes of HTML form tag.

1807E216   Candidate's Seat No :_____

M.C.A. (Sem.-3) Examination
Java Programming
Time : 3-00 Hours]   July 2019   [Max. Marks : 50

Instructions: Draw Diagrams wherever necessary.
Make Assumptions wherever necessary.

SECTION - I

Q-1   Explain the following terms with an appropriate example: 9
    a. ByteCodes
    b. Daemon Thread
    c. Abstract Method

Q-2   Attempt the following :   8
    a. Name five Packages in Java Class libraries and briefly describe their function
    b. Explain JDK root directory with diagram
OR
Q-2   Attempt the following :   8
    a. Discuss any Five Wrapper classes with appropriate example
    b. Define : **1.** JVM   **2.** Enum

Q-3   Attempt the following :   8
1. Fill in the Blanks
    a. Object is an instance of a _____   6
    b. Fillarray method belongs to _____ class
    c. A software object's behavior is exposed through _____
    d. A collection of methods with no implementation is called a/an _____

    e. A namespace that organizes classes and interfaces by functionality is called a _____
    f. The most basic control flow statement supported by the Java programming language is the _____ statement.
    g. A/An _____ is a container object that holds a fixed number of values of a single type.

2. Explain "Can You overload Static Methods?"   2

OR
Q-3   Attempt the following: 8
    a. Differentiate : Mutable and Immutable
    b. Define : 1. Finalize   2.Serialization

P. T. O

E 216-2

SECTION - II

Q-4 Explain the following Terms with an appropriate example.   9
  a. Interface
  b. ActionListener
  c. Deadlock

Q-5 Attempt the following: 8
  a. Explain basic Inputstream operations,   5
  b. Discuss the types of Exceptions with diagram.
                                   OR   3

Q-5 Attempt the following:
  a. What is Thread? What are the different stages of thread life cycle? 8
     Compare different ways of creating thread in java with example code. 4
  b. What is Layout Manager? Explain at least three layouts   4

Q-6 Attempt the following: 8
  a. Differentiate : Comparator vs Comparable
  b. Differentiate : Binary Stream Vs Character Stream

                                   OR

Q-6 Attempt the following: 8
  a. Differentiate : Observable and Observer
  b. Differentiate : Thread Vs Runnable