B.Sc.-IT(Part-3)-EXAMINATION, 2010

COMPUTER ELECTRIC CIRCUIT AND ANALYSIS

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. (a) What is meant by quantization? How was it ascertained that charge is quantized? What is the quantum of charge? 5

    (b) In a hydrogen atom the electron moves round the proton in an orbit of radius 0.53×10^{-10} m. What is the potential energy of the electron? 5

2. (a) What is a condenser? What is the effect of placing a dielectric medium between the plates of a capacitor? How are the potential difference developed and capacitance of the capacitor affected? 6

    (b) Three identical capacitor are first connected in series and then in parallel. What will be the ratio of equivalent capacitances in the two cases? 4

3. (a) What is time constant (charging and discharging of capacitor)? Describe the dependence of charging and discharging process on time constant. 6

    (b) A charger capacitor of $0.1\mu F$ is discharged through a $10\ M\Omega$ resistance. In what time the charge on the condenser will be 36.8% of its initial value? 4

4. (a) Obtain an expression for magnetic induction at a point on the axis of a current carrying coil. How does the field vary with distance from the centre? Show graphically. 6

    (b) A solenoid has 500 turns and its length is 0.25m. If a current of 3A flows through it, determine the magnitude of magnetic induction inside the solenoid. 4

5. (a) What is impedance of a circuit? Determine the impedance of R-C circuit and show that in such a circuit current leads the voltage. 6

    (b) In an AC circuit the peak value of current is 4.0 ampere. If in that circuit (i) an AC ammeter or ii) DC ammeter, are connected, what will be their readings? 4

6. (a) Give a simple diagram of a DC motor. Describe its construction and working. Explain the effevt of back emf on the current in the motor. 6

    (b) What is a universal shunt? Where is used? 4

7. (a) What is a four terminal network? Define the h-parameters for such a network. Why are these so called? 6

    (b) What is the maximum power that can be delivered by a generator of emf E and internal impedance Rg? 4

8. (a) State Kirchoff's Laws and explain their application with the help of examples. 6

    (b) The radius of a wire is reduced to half of its original value by stretching it. What will be its resistance now? 6

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9.   (a) Define mutual induction. How is coefficient of mutual induction related to the coefficient of delf induction of two coils, magnetically coupled.   6

        (b) How can you differentiate between para-and ferro-magnetic materials?   4

10. Write short notes on the following:

        (i) Gauss's law of electrostatics

        (ii) Multi-meters   5+5

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Operating System

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. Write down the essential differences between the following types of operating systems:
   a. Batch System
   b. Real Time System
   c. Time Sharing System

2. Explain layered design of DOS operating system and quote the differences with the Unix operating system.

3. With reference to the following set of processes, determine average waiting time and average turn-around time, using the following scheduling algorithms:
   a. First come first serve
   b. Shortest job first
   c. Priority based
   d. Round Robin

   Note: Make use of Gantt charts, time slice for Round Robin scheduling in 4 ms.

4. Explain structure of concurrent system.

5. What are the different functions of an Operating System? Explain in brief each function.

6. What do you mean by process and content switching? What is role of threading?

7. Explain the following:
   a. Semaphore
   b. Monitor

8. Explain file manipulation system in Unix.

9. Write a program to check whether the string entered by user is palindrome or not.

10. Explain the following commands:
    a. Pipe
    b. Filter
    c. mv
    d. rm
    e. cp
    f. Is
    g. mkdir

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h. mail

i. tr

j. tail

B.Sc.-IT(Part-3)-EXAMINATION, 2010

E-Commerece

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. What are the basic differences between E-commerce and Traditional commerce? Discuss the social issues related with E-commerce.   10

2. What do you understand by Information Super high-way (I-way)? Explain.   10

3. Write short note on any two of the following:

    a. Firewall

    b. E-mail

    c. Encryption and decryption   2 x 5

4. Explain different types of E-commerce with suitable examples.   10

5. Explain client-server architecture of E-commerce.   10

6. Give overview of mobile computing technologies and its applications.   10

7. What is EDI? Explain its layered architecture along with its tangible benefits. 2+8

8. Write a note on 'Data and Message Security'.   10

9. Explain Mercantile models from the Merchant's perspective.   10

10. Explain any two of the following:

    i) Digital money

    ii) EFT

    iii) Smart cards

B.Sc.-IT(Part-3)-EXAMINATION, 2010

Visual Basic Programming

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. a) What do you mean by Integrated Development Environment (IDE)? Discuss the characteristics and features of Visual Basic- IDE.   6

   b) What do you mean by Event-Driven Programming? Explain.   4

2. a) Differentiate between list box and combo box controls. What are the basic properties of these controls?   4

   b) What is pop-up menu? What are uses of pop-up menu? How to create the pop-up menu in VB?   6

3. a) What are objects and properties? How are they related to each other?   5

   b) What is coordinate system in VB? What are the advantages of coordinate system?

                   5

4. a) What are Form Mouse Events? Explain various Form Mouse Events in VB with suitable examples.   4

   b) Write code in VB to input a decimal number and convert it into its equivalent Binary, Octal and Hexadecimal numbers by clicking the different option buttons.

                   6

5. Differentiate the following:
   i.   Implicit and Explicit variables
   ii.   ByRef and Byval with examples
   iii. Scroll bar and Slider controls
   iv.   Data unbound and data bound controls with examples

6. a) What do you mean by a project in VB? Explain different types of projects available in VB. How they are differentiate from each other?

   b) What do you understand by common dialog box? Write code to display the color palette dialog box and change the background color of the form using color palette.

7. a) Write code for loading forms, unloading forms, showing forms and hiding forms.

   b) What do you mean by Graphic controls and Graphic methods? Explain with suitable examples.

8.   Write code for the following:
   i) To check whether the entered value in a text box is numeric or not.
   ii) All items for the combo box list get removed.

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iii) Reverse the string "visual basic".

iv) Access child form MDI form.   2 ½ x 4

9. a)   Explain different find methods of records sets to find the record of any given name stored in variable "dbi" using suitable code.

   b)   What do you mean by Active-X component and how to use them in user program?

10. Write short notes on the following:

   a)   MDI form

   b)   Visual basic debugging tools

   c)   Data control

   d)   Text files in VB

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B.Sc.-IT(Part-3)-EXAMINATION, 2010

Multimedia

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. a) Explain the framework for multimedia system.

   b) Give the advantage of multimedia system.

2. a) What are communication devices? In multimedia what communication devices are used?

   b) Explain the role of computer in multimedia system.

3. a) Explain in brief multimedia commercial tools and standards.

   b) What are Vector and Bitmap images?

4. a) What do you mean by image analysis, image synthesis and image recognition?

   b) Compare the JPEG and MPEG.

5. Write short note on the following any four:

   a. Speech recognition
   b. Interpolation
   c. Audio compression
   d. Decompression of image
   e. Virtual reality

6. a) What do you understand by Digital Video Interface?

   b) Explain DVI-Real Time compression.

7. a)What is speech transmission? What are the different methods of speech   transmission?

   b) Explain the following:

   i. Frequency
   ii. Sampling rate
   iii. Quantization

8. a) What are multimedia laws defined by United States?

   b) Explain the lossy sequential DCT-based coding technique in detail.

9. a) How style sheet works with HTML? Explain with example.

   b) What are the benefits and drawback of frames in HTML?

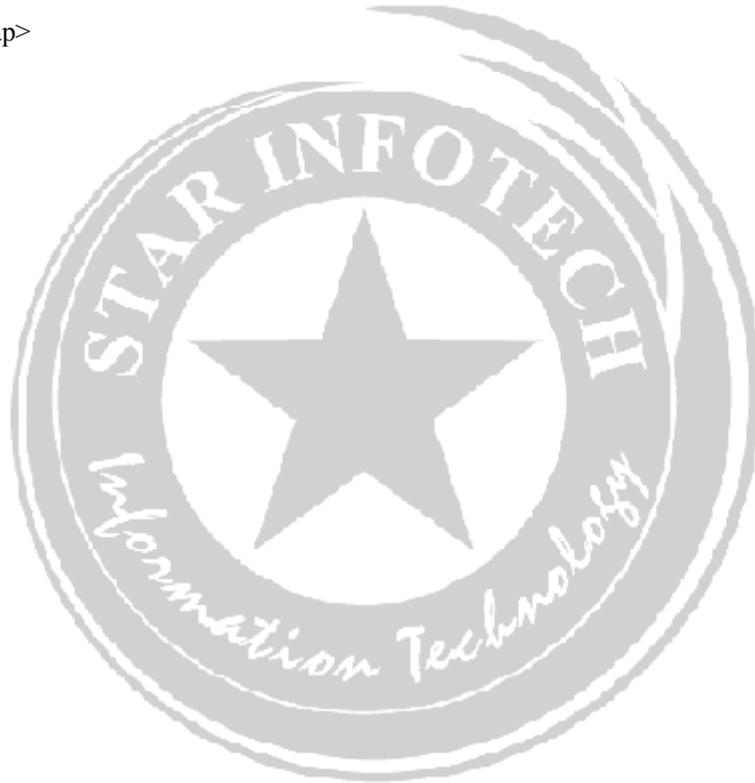10. a) Write an HTML code to enter a table for the following detail:

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S	S.No.	Name	Subject-I	Subject-II	Subject-III
C	1.	Ram	35	40	75
I	2.	John	20	33	53
T	3.	Ali	19	36	55
	4.	Raju	46	38	84

b) Explain the following:

    a)   <Img>

    b)   <A>

    c)   <Pre>

    d)   <Frame set>

    e)   <Map>

B.Sc.-IT(Part-3)-EXAMINATION, 2010

Relational Database Management System

Time allowed : Three Hours

Maximum Marks : 50

Answer five questions in all . All questions carries equal marks.

1. (a) Explain ACID properties of RDBMS with respect to Database Transaction Management.

    (b) Why do we need deadlock recovery methods in a database? Discuss some of these techniques.

2. Elaborate the placement of several components of distributed database. Explain the significance of each.

3. What are different query optimization techniques? Explain in detail the different joins in SQL.

4. Write short notes on any four:

    a. Database languages

    b. Three tier client server architecture

    c. Error handling in PL/SQL

    d. SQL stored procedures

    e. Searching and Matching functions

5. What is the need of Data warehousing? Explain its architecture with characteristics.

6. Compare:

    a. Before and After triggers

    b. Trigger Vs Declarative Integrity Constraints

7. Write a program in PL/SQL to create an employee table with following fields: Employee (SSN, Ename, Address, Dno)

    Assume SSN as primary key.

    Insert a new record in the table of an employee whose SSN is 12345, Ename is RAM, lives in Jaipur and Dno in I.T.-36.

8. How are constraints imposed on a database? Explain different types of constraints available in SQL.

9. Explain the following RDBMS operations

    a. Select

    b. Object

    c. Set Intersection

    d. Update

10. What is Data mining? Explain its classification and application.

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