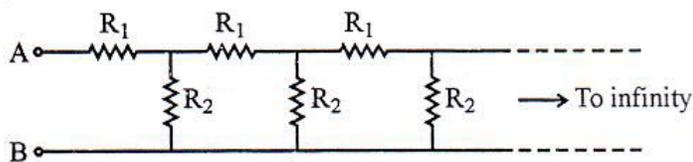


# B.Sc. IT (Part III) Examination, 2012

## COMPUTER ELECTRIC CIRCUIT AND ANALYSIS

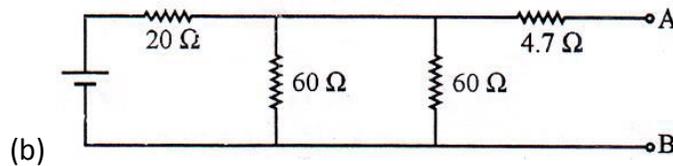
- Describe conductor and insulator on the basis of electron theory.
  - State coulomb's law. Write it in vector form
  - What do you mean by quantization of charge?
- Describe electric lines of force.
  - State Gaugs's law of electrostatics.
  - Is it possible to move a charge in an electric field without doing work? If so how and if not why?
- Derive the formula for capacity of parallel plate capacitor.
  - Describe effect of dielectric medium for capacity of capacitor.
  - When a battery is connected across a capacitor, are the charge on the plates always equal and opposit, even for plates of different size?
- Define resistance of material. State Ohm's law.
  - Find the effective resistance between points A and B of an infinite chain of resistors joined as shown in fig.



- Give n resistors each of resistance R. How will you combine them to get:
    - the maximum and
    - minimum effective resistance.
- Derive magnetic field at an axial point of a circular coil.
  - Describe magnetic field inside solenoid.
- Describe C-R circuit with voltage applied  $E = E_0 \sin w t$ .

(b) A .21 H inductor and a  $12 \Omega$  resistor are connected in series to a 220 V, 50 Hz ac source. Calculate the current in the circuit and the phase angle between the current and the source voltage.

7. (a) State and prove maximum power transfer theorem.



Find current between A and B with thevenine theorem.

8. Write short notes on the following:

(a) Single phase induction motor.

(b) DC Motor

9. (a) State Farady's law of electromagnetic.

(b) Describe Transformer.

(c) Calculate energy stored is 100 mH coil with current of 1 amp

10. (a) A 1KW heater is ment to operate at 200 V.

(i) What is its resistance?

(ii) How many units of electrical energy will it consume in a month of 30 days if it operates 10 hrs daily?

(b) Is Ohm's law true for all conductor?

# B.Sc. IT (Part III) Examination, 2012

## OPERATING SYSTEM

1. Describe the differences between symmetric and asymmetric multiprocessing. What are three advantages and one disadvantage of multiprocessor system?
2. What are the major activities of an Operating System with regard to File Management?
3. What is interprocess communication? Explain the fundamental models for interprocess communication.
4. Why is it important for the scheduler to distinguish I/O-bound programs from CPU-bound programs?

Explain the differences in how much the following scheduling algorithms discriminate in favour of short process:

(a) FCFS

(b) RR

(c) Multilevel feedback queues.

5. Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. In answering the questions, use non-preemptive scheduling, and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

- (a) What is the average turnaround time for these processes with the FCFS scheduling algorithm?
- (b) What is the average turnaround time for these processes with SJF scheduling algorithm.

- (c) The SJF algorithm is supposed to improve performance but notice that we choose to run process P1 at time 0 because we did not know that two shorter process would arrive soon. Compute what the average turnaround time will be if the CPU is left idle for the first 1 unit and then SJF scheduling is used.
6. Explain how the critical section problem can be overcome by using synchronization tool called semaphore.
  7. Explain the following synchronization problem.
    - (a) The Bounded-Buffer problem
    - (b) The Dining philosophers problem
  8. Explain scheduling in UNIX.
  9. Explain UNIX security mechanism.
  10. Write a program to calculate factorial of n.

# B.Sc. IT (Part III) Examination, 2012

## VISUAL BASIC

1. Explain any four:
  - (a) Projects
  - (b) User Interface
  - (c) Forms
  - (d) Event-Driven Programming
  - (e) Internet Applications
2. Explain any four:
  - (a) Naming rules of a user's name
  - (b) Documentation
  - (c) Loops
  - (d) Objects
  - (e) Develop a VB program to find LCM from 2 values.
3. Write a menu driven program for display any four series.
4. Draw and explain any four tool bars.
5. Differentiate the following with example:
  - (a) Forms and Menus
  - (b) Drag and Drop operations.
6.
  - (a) Explain TextBox and ComboBox with examples.
  - (b) Explain slider control operations with suitable examples.
7. What is method? Explain graphic methods with examples.
8. What do you mean by a database? Write source code in VB to create a database.
9. Explain various data controls and queries.

10. Explain any four of the following:

(a) Windows

(b) Data Types

(c) Operators

(d) Arrays

(e) Functions

# B.Sc. IT (Part III) Examination, 2012

## MULTIMEDIA BASIC

1. (a) What are the various objects of multimedia system?  
(b) What are the types of compression techniques?  
(c) Discuss how multimedia can be used for the following application areas:
  - (i) E-learning
  - (ii) E-commerce
2. Discuss the various audio compression techniques.
3. (a) List and discuss the minimum h/w and s/w requirements for a digital multimedia work station/computer system.  
(b) Explain the JPEG compression standard and MPEG video compression.
4. (a) Explain any two features of authoring software.  
(b) Explain the digital representation of sound and transmission.
5. (a) Write short note on program storyboard  
(b) What do you mean by speech recognition and generation?
6. (a) Explain the use of multimedia in office and home  
(b) Explain the five risk due to internet.
7. Assume you are running an ABC institute for computer courses. You want to setup your website for the same. List all the activities that you are required to perform for publishing the site on the internet. What do you mean by web browser?
8. (a) What is unordered list? Explain how it can be created using HTML.  
(b) What is CSS? Explain the advantages of CSS.
9. (a) What is HTTP? Explain uses of HTTP in web application.  
(b) What is meant homepage of a website? Write any four features of a homepage.  
(c) Differentiate between internet and intranet.

10. (a) In the following objective question, each question has four choices, select the correct choice as your answer. In none of the given choices is correct then select O as your answer. Indicate your answer in answer sheet.

(i) The following is the comment tag in HTML code:

(A) <body>

(B) <!-->

(C) <p>

(D) <br>

(ii) Heading tags range between:

(A) h1, h6

(B) h3, h8

(C) h5, h10

(D) h2, h4

(iii) The two main sections of a HTML document are:

(A) H1, H2

(B) head, body

(C) br, ul

(D) title, br

(iv) VGA stands for

(A) Super Video Graphics Array

(B) Simple Video Graphics Attribute

(C) Similar Video Graph Array

(D) None of the above

(v) A HTML file can be created using any simple text editor like notepad or wordpad and must have \_\_\_\_\_ file extension.

- (A) htm
- (B) html
- (C) both (A) & (B)
- (D) None of the above

(vi) \_\_\_\_\_ is a graphics file format.

- (A) GIF
- (B) DOC
- (C) RTF
- (D) PPT

(vii) HTML stands for

- (A) High Text Markup Language
- (B) Hyper Text Markup Language
- (C) Hyper Text Management Language
- (D) None of the above

(viii) How can you make a list that lists the items with bullets?

- (A) <ol>
- (B) <bl>
- (C) <list>
- (D) <ul>

(b) Write a short note on GIF construction set.

# **B.Sc. IT (Part III) Examination, 2012**

## **RELATIONAL DATABASE MANAGEMENT SYSTEM**

1. What is RDBMS? Discuss the 12 Codd's rule for RDBMS.
2. Discuss the architecture of distributed data processing systems. Discuss data placement factors and the role of DDBMS.
3. Define transaction management, concept and transaction state. Describe atomicity and serializability.
4. Write short notes on any three of the following:
  - (a) Lock based protocol
  - (b) Time stamp based protocol
  - (c) Deadlock handling
  - (d) Concurrency control
  - (e) Index structures
5. Discuss the heuristics in query optimization and processing. What is the relevance of query optimization techniques.
6. What is a data warehouse? Discuss ETL (Extract Transform and Load) processes.
7. Discuss the security and integrity issues in databases. Describe log based recovery and shadow paging.
8. Present an overview of three tier client server technology.
9. Define database management. Hence describe DDL, DML, and DCL.
10. What do you understand by database triggers? Discuss the usage and types of database triggers.