# BCA Second Semester Examination- May, 2015

## FIRST PAPER

## OBJECT ORIENTED PROGRAMMING CONCEPTS

Paper Code: 2711

**Time Allowed: Three Hours** **Maximum Marks : 70**

*(1) No supplementary answer book will be given to any candidate. Hence the candidates should write the answers precisely in the main answer book only.*

*(2) All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book.*

**(Attempt all six questions.)**

**Part I (Question No. 1& 2) is compulsory & part II (Question No. 3, 4 , 5 & 6) has internal choice.**

### PART I

1. Attempt any 10 questions out of the following. Each question carries 1 mark. **10x1=10**
(Words limit upto 20 words each)

a) What do you mean by Data Binding ?

b) List the C++ operator which cannot be overloaded.

c) When do we make a Class Virtual ?

d) Write special properties of the Constructor Functions.

e) What do you understand by the term Abstract Data Type ?

f) What is Copy Constructor ?

g) What is Static Member Function ?

h) What is Class Templates ?

i) What is the main advantage of passing arguments by deference ?

j) What is Pure Virtual Function ?

k) What is Protected Class ?

l) What is the name of construct used in the following statement, and how does it operate ?

a= (b>c)? b: c ;

2. Attempt all questions. Each question carries 5 marks. **4X5=20**
(Words limit up to 50 words each)

a) What are the features of Object Oriented Programming Language ?

b) Distinguish between Overloaded Functions and Function Templates.

c) Write short note on Polymorphism.

d) Write a program to show that the declaration of a class 'Rectangle', which derives from the class 'square', which in turn derives from the class 'shape'.

## PART II

### Unit I

3. (i) Discuss how dynamic allocation is achieved in C++ programming.
   (ii) Compare between Procedural and Object-Oriented approach:

**OR**

Write a C++ program to accept a year from the user and check whether it is a Leap year.
Hint.- If a year is divisible by 4 and not divisible by 100, or if the year is divisible by 400, it is a leap year.

### Unit II

4. What are Friend Function and Friend Classes ? Write a normal function which adds objects of the complex number class. Declare this normal function as friend of the complex class.

**OR**

Write a C++ program to add and multiply two complex numbers using constructor.

### Unit III

5. What do you mean by Inheritance. Explain different types of inheritance.

**OR**

(i) How is polymorphism achieved at run-time ? Explain with suitable example.
(ii) What is Operator Overloading ?

### Unit IV

6. (i) What is an Exception ? How is an exception handled in C++ ? Explain.
   (ii) Write short note on Standard Template Library ?

**OR**

Explain the following file functions with suitable example-
(i) f open ( )
(ii) f close ( )
(iii) f printf ( )
(iv) f scanf ( )

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# BCA Second Semester Examination- May 2015

## SECOND PAPER

## Internet & Web Technologies

Paper Code : 2721

**ıe Allowed: Three Hours** **Maximum Marks-70**

*(1) No supplementary answer book will be given to any candidate. Hence the candidates should write the answers precisely in the main answer book only.*

*(2) All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book.*

**(Attempt all six questions.)**

**Part I (Question No. 1& 2) is compulsory & part II (Question No. 3, 4 , 5 & 6) has internal choice.**

### PART-I

**Answer any 10 questions out of the following. Each question carries 1 mark.** **10x1= 10**

a) What do you mean by Internet Domain?

b) What is Web Server?

c) What is Frameset?

d) What is Web Client?

e) What is Heading Tag?

f) What do you mean by Link Tag?

g) What is CSS?

h) What is DHTML?

i) What is SGML?

j) What is Script Language?

k) Explain ParseInt Function in Java Script?

l) What does DOM Stand for ?

**Answer all the questions. Each question carries 5 marks.** **4x5= 20**

a) What do you mean by TCP/IP?

b) What is Navigator?

c) Define advantages of Java Script.

d) Define advantages of XML.

## PART-II

### Unit I

3. How do we create forms in HTML? Explain with suitable example.

**OR**

What do you understand by TCP/IP and its services?

### Unit II

4. What is DHTML? Explain features of DHTML?

**OR**

Write short notes on:-

a) SGML
b) XML

### Unit III

5. What is Java Script? Explain advantages of Java Script.

**OR**

Explain the Java Script Array and functions.

### Unit IV

6. What is objects of DOM for DHTML?

**OR**

Explain event handling and validation in Java Script.

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# BCA Second Semester Examination- May 2015

## THIRD PAPER

## Digital Electronics & Circuits

Paper Code : 2731

**ne Allowed: Three Hours** **Maximum Marks-70**

*(1) No supplementary answer book will be given to any candidate. Hence the candidates should write the answers precisely in the main answer book only.*

*(2) All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book.*

**(Attempt all six questions.)**

**Part I (Question No. 1& 2) is compulsory & part II (Question No. 3, 4 , 5 & 6) has internal choice.**

### PART-I

**Answer any 10 questions out of the following. Each question carries 1 mark.** **10x1= 10**

**a)** What is standard and SOP form ?

**b)** What are Universal Logic Gates ?

**c)** What is Ex-NOR gate ?

**d)** What do you mean by don't care state ?

**e)** What is DCTL gate ?

**f)** What is the major advantage of CMOS gates ?

**g)** What do you mean by Sequential Circuits ?

**h)** What is a Priority Encoder ?

**i)** What is D Flip-Flop ?

**j)** What is the relation between Flip-Flop and Latch ?

**k)** What is Shift Register ?

**l)** What are the advantages of synchronous counter ?

**Answer all the questions. Each question carries 5 marks.** **4x5= 20**

**a)** Explain the working of OR gate.

**b)** Discuss various logic families.

**c)** Explain the working of BCD to seven segment De-coder.

**d)** Explain the working of RS Flip-Flop.

## PART-II

### Unit I

3. (a) Minimize the following logical function using K-map

$$f(A,B,C,D) = \sum m\,(1,5,6,12,13,14) + d(2,4)$$

(b) Realize the reduced expression using NAND gates.

**OR**

(a) Expand $A + B\overline{C} + AB\,\overline{D} + ABCD$ to minterms and maxterms. Express the above expressi in standard SOP and standard POS form.

(b) Draw the Circuit diagrams for the synthesis of AND, OR and NOT gates using only NOR gates.

### Unit II

4. (a) Draw and explain DCTL NOR gate.

(b) Compare TTL and CMOS with respect to fan in, fan out, noise margin, propagation delay and power dissipation.

**OR**

(a) What are different characteristics and comparison of the major logic families ?

(b) Write the difference between positive and negative logic.

### Unit III

5. (a) Explain the working of Decimal to BCD priority encoder.

(b) Explain the working of 8 : 1 mutiplexer.

**OR**

(a) Explain the construction and working of 1 : 16 Demultiplier.

(b) Explain the working of parity checker and draw the pin-out diagram for IC 74180 parity checker.

### Unit IV

6. (a) What do you mean by race around condition in J-K flip-flop ? How it can be avoided ? Explain.

(b) Explain the construction and working of Master-Slave flip-flop.

**OR**

(a) Draw the four stages of shift left, shift right register and explain its working.

(b) Differentiate between Synchronous and Asynchronous Sequential Counters.

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# BCA Second Semester Examination- May, 2015

## Fourth PAPER

## COMPUTER ARCHITECTURE

Paper Code: 2741

**me Allowed: Three Hours** **Maximum Marks : 70**

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*(2) All the parts of one question should be answered at one place in the answer book. One complete question should not be answered at different places in the answer book.*

**(Attempt all six questions.)**

**Part I (Question No. 1& 2) is compulsory & part II (Question No. 3, 4 , 5 & 6) has internal choice.**

### PART I

1. Attempt any 10 questions out of the following. Each question carries 1 mark. **10x1=10**
(Words limit upto 20 words each)

a) What is FULL-Subtractor ?

b) Draw the truth table and circuit of exclusive-NOR (XNOR) Gate.

c) What is Flip-Flop ? Give the names of any six types of Flip-Flops.

d) What is Asynchronous or Ripple Counters ?

e) What is Multiplexer ?

f) What do you understand by Register Mode ?

g) What is Sequential and Combinational circuits ?

h) What is an Instruction Format ?

i) What do you mean by RISC/CISC ?

j) Give brief information about Pipelining.

k) What is Virtual Memory ?

l) What do you understand by Interrupts ?

2. Attempt all questions. Each question carries 5 marks. **4X5=20**
(Words limit up to 50 words each)

a) Differentiate between Encoder and Decoder.

b) Explain NAND and NOR gates.

c) What do you mean by Addressing Modes ? Explain Direct Access Mode.

d) What is Direct Memory Access ? Explain DMA controller.

## PART II

### Unit I

3. What do you understand by Combinational Circuit ? Describe Half and Full Adder ? Give both logic diagram and Truth Table ?

**OR**

(a) Differentiate between Combinational Circuit and Sequential Logic Circuit ? **5x2=**

(b) Explain the multiplexer and Demultiplexer with an example.

### Unit II

4. What is J.K Flip-Flop ? What is the advantage over the SR Flip-Flop ?

**OR**

What is a Register ? Explain Shift Registers in detail. **1**

### Unit III

5. What do you mean by Addressing Modes ?
   (i) Implied and Immediate mode
   (ii) Register and Register indirect mode
   (iii) Relative Address Mode

**OR**

(i) Explain the Execution Cycle of CPU . **5x2=**

(ii) Describe Interrupt Cycle and its need .

### Unit IV

6. Write short note on:- **1**
   (i) Virtual Memory
   (ii) Paging
   (iii) DMA controller
   (iv) RISC and CISC

**OR**

What do you mean by Cache Memory ? Also explain the mapping techniques of Cache Memory.

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