B.C.A Examination, Dec. 2018

COMPUTER ARCHITECTURE & ASSEMBLY LANGUAGE

(BCA-303) (New Course)

Time: Three Hours   **Maximum Marks : 75**

Note : Attempt questions from all Sections as per instructions

Section-A

(Very Short Answer Questions)

Attempt all the five question Each question carries 3 marks. Very short answer is required.   3 x5=15

1. What are the three major phases through which the control unit go through an instruction cycle ?

2. Write a note on computer registers.

3. What do you understand by interleaved D.M.A.?

4. What is asynchronous data transfer ?

5. Distinguish between fixed point and floating point representation.

Section-B

(Short Answer Questions)

Attempt any two questions out of the three questions. Each question carries 7½ marks. Short answer is required.

6. (a) Differentiate between RISC and CISC.

(b) What is the difference between hardwired control and microprogrammed ?

7. Draw and explain a 4- bit arithmetic circuit which can perform the following:

(a) Add

(b) Add with carry

(c) Subtract with borrow

(d) Subtract

(e) Transfer of A

(f) Increment

(g) Decrement.

8. Write an assembly language program to add 'n' number where the numbers are stored in 'n' consecutive locations (NUM, NUM+1......NUM + n-1) and to store the result in memory location SUM. The number 'n' is stored in memory location N.

Section-C

(Detailed Answer Questions)

Attempt any three questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.   15x3=45

9. (a) Perform the subtraction of the following unsigned decimal number by taking 10's complement of the subtrahend:

7452 - 1243

(b) Perform the subtraction of the following unsigned binary number by taking 2's complement of the subtrahend:

11010-1101

(c) What is the use of macros in I/C instruction ?

10. Draw a block diagram for data transfer from CPU to an interface and then to an I/O device. Determine the procedure for setting and clearing the flag bit.

11. What is a difference between a direct and indirect address instruction ? How many references to memory are needed for each tune of instruction bring an operand into a processor register?

12. Draw and explain one stage of an ALU with shift capability along with the microoperations performed

13 Write short notes on any three of the following:

(a) Arithmetic pipelining

(b) Instruction set

(c) Interrupts useful in improving processing efficiency

(d) Array processor

(e) Serial communication.

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(21218)

Roll No. ....

BCA-III Sem.

18013

B. C. A. Examination, Dec. 2018

Computer Architecture & Assembly Language

(BCA-303)

(New Course)

Time : Three Hours]   *[Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required.

3×5=15

1. What are the three major phases through which the control unit go through an instruction cycle ?

2. Write a note on computer registers.

(2)

3. What do you understand by interleaved D. M. A.?

4. What is asynchronous data transfer ?

5. Distinguish between fixed point and floating point representation.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required.   7½×2=15

6. (a) Differentiate between RISC and CISC.

     (b) What is the difference between hardwired control and microprogrammed ?

7. Draw and explain a 4-bit arithmetic circuit which can perform the following :

     (a) Add

     (b) Add with carry

     (c) Subtract with borrow

     (d) Subtract

     (e) Transfer of A

     (f) Increment

     (g) Decrement.

18013

8. Write an assembly language program to add 'n' number where the numbers are stored in 'n' consecutive locations (NUM, NUM+1......NUM + n-1) and to store the result in memory location SUM. The number 'n' is stored in memory location N.

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.   15×3=45

9. (a) Perform the subtraction of the following unsigned decimal number by taking 10's complement of the subtrahend :

7452 – 1243

(b) Perform the subtraction of the following unsigned binary number by taking 2's complement of the subtrahend :

11010 – 1101

(c) What is the use of macros in I/C instruction ?

18013

10. Draw a block diagram for data transfer from CPU to an interface and then to an I/O device. Determine the procedure for setting and clearing the flag bit.

11. What is a difference between a direct and indirect address instruction ? How many references to memory are needed for each type of instruction to bring an operand into a processor register ?

12. Draw and explain one stage of an ALU with shift capability along with the microoperations performed.

13. Write short notes on any three of the following :
    (a) Arithmetic pipelining
    (b) Instruction set
    (c) Interrupts useful in improving processing efficiency
    (d) Array processor
    (e) Serial communication.

18013-4-

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(21218)

BCA- III Sem.

Roll No. ....

18012

B. C. A. Examination, Dec. 2018

Data Structure Using C and C++

(BCA-302)

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Answer all the *five* questions. Each question carries

3 marks. Very short answer is required.   3×5=15

1.   What are AVL trees ?

2.   What do you understand by Data Structure ?

3.   What is an array ? Explain.

4.   Give the application of stack.

5.   Define circular list and chain.

Section-B

(Short Answer Questions)

Answer any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required.   7½×2=15

6.   Write the procedure to delete an element from an array.

7.   Write a recursive function to count the number of leaves in a binary tree.

18012

8. Write a function to reverse a stack using push and pop operation.

Section-C
(Detailed Answer Questions)

Answer any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 15×3=45

9. (a) How to delete an element from a linked queue ? Write procedure.

 (b) Find the time complexity of Bubble Sort Algorithm.

10. (a) What is Binary search tree ?

 (b) What is a B-tree ?

11. (a) Write a function to evaluate a postfix expression. Show status of stack for each scanned token if the postfix expression is :

 ABC * DEF $/- G+H* −

 (b) Differentiate between stacks and queues.

12. Write a program to print a given singly linked list in the reverse order.

13. Write short notes on the following :
 (a) Priority Queues
 (b) Hashing Techniques.

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(21218)   Roll No. ....

B.C.A.-III Sem.

18015

B. C. A. Examination, Dec. 2018

Elements of Statistics

(BCA-305)

(New Course)

Time : Three Hours]   *[Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks.   3×5=15

1. Define the following terms :

   (i)   Union and intersections of events

   (ii) Mutually exclusive and independent events

   (iii) Specification limits and tolerance limits.

2. Define frequency polygon and frequency curve.

3. What do you mean by process and product control ?

4. A coin is tossed three times with probability of head 1/4 and probability of tail 3/4. Obtain probability of getting at least one head.

5. Define permutation and combination.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. 7½×2=15

6. Discuss the various measures of central tendency with their limitations.

7. What is meant by statistical quality control ? Discuss $\bar{X}$ and R charts with their applications in industry.

8. Calculate quartile deviation of the following data :

Class Interval	Frequency
0 – 10	14
10 – 20	10
20 – 30	8
30 – 40	6
40 – 50	9
50 – 60	5
60 – 70	3
70 – 80	2

18015

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. 15×3=45

9. Explain the use of *p*-chart and c-chart. A bicycle manufacturer randomly selects 10 frames each day and tests for defects. The number of defective frames found over the last 14 days is 3, 2, 1, 3, 2, 2, 8, 2, 0, 3, 5, 2, 0, 4. Construct a control chart for this process and comment on whether the process is 'in control'.

10. (a) A box contains 4 chocobars and 4 icecreams. Tom eats 3 of them by randomly choosing. What is the probability that he eat 2 chocobars and 1 ice cream?

    (b) In a class, 40% of the students study Math and Science. 60% of the students study Math. What is the probability that a student studying Science given that he/she is already studying Math?

11. Discuss the various types of classification and tabulation of data in detail.

12. What is Statistics? Discuss the uses of statistics in different fields.

13. Write short notes on the following:

    (i) Measure of dispersion

    (ii) Three sigma control limits and its uses

    (iii) Relative measure of dispersion.

18011

B. C. A. Examination, Dec. 2018

OBJECT ORIENTED PROGRAMMING Using C++

(BCA-301)

Time : Three Hours)   **(Maximum Marks :75**

Note: Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Answer all the five questions. Each question carries 3 marks. Very short answer is required.   3x5=15

1. Define the terms Object, Class.

2. What do you mean by Inheritance ?

3. What is data hiding?

4. Differentiate between call by value and call by reference

5. What is aggregation?

Section-B

(Short Answer Questions)

Answer any two questions out of the following three questions. Each question carries 7½marks. Short answer is required.   7½x2=15

6. Write a sample code to show the difference between C and C++.

7. Write a code to compute factorial of a number, use of constructors shall be done.

8. What is polymorphism? Write a code to show the use of polymorphism.

Section-C

(Detailed Answer Questions)

 Answer any three questions out of the following five questions. Each question carries 15 marks. Answer is required in detail   15x3=45

9. Write a program in C++ to compute the average marks of 50 students in the class. Take necessary assumptions.

10. What are constructors ? Write sample code to show the working of constructors with inheritance.

11. What is the difference between Operator Overloading and Operator Overriding ? Write a code to show how overriding is achieved

12.Write a program to overload unary + and unary operator.

13. What do you mean by Exception Handling ? Write a program to show how it is achieved in C++.

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(21218)

Roll No. ....

BCA-III Sem.

18014

B. C. A. Examination, Dec. 2018

Business Economics

(BCA-304)

(New)

Time : Three Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 3×5=15

1. W.T.O.

2. Explain law of supply.

3. Define inflation.

4. What is monopoly ?

5. Any two causes of unemployment.

Section-B

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words.

7½×2=15

6. Explain the properties of indifference curve.

7. Explain the difference between monopoly and oligopoly market.

8. Explain the concept of elasticity of demand with its application.

18014

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.   15×3=45

9.   Discuss the features of monopolistic competition.

10. What do you mean by price policy ? Discuss the general and other consideration involved in formulating price policy.

11. Discuss law of demand. Explain in detail the various types of elasticity of demand.

12. Explain the various methods of forecasting.

13. Explain EXIM Policy, 2004–2009.