UG — BCA
(C – 3001)

2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

Answer any **four** questions of the following :

$10 \times 4 = 40$

1. What is Data Structure ? Explain different data structure.

2. What is Sparse Array ? Explain 3-tuple representation of sparse matrix with the help of suitable example.

AK – 72/2

3. How does a linear linked list compare with linear array ? Write function to add a node at the beginning of linked list.

4. Translate this expression into postfix notation and then evaluate it :

$12/(7 - 3) + 2^*(3 + 8) - 7$

5. For a binary tree T, the in-order and post-order traversal sequences are the following :

In-order   D C K E A H B Q J I

Post-order D K E C H Q J I B A

Draw the binary tree T.

6. Write a program to implement the concept of Stack.

7. Illustrate the working of the Bubble sort method of an array.

35 20 40 100 3 10 15

8. What is Binary Search Technique ? Write an algorithm / function of Binary Search Technique.

Answer **all** question of the following : 3×10 = 30

9. What is enumerated data type ?

10. What is the criterion that every algorithm must satisfy ?

11. Define Polish notation.

12. What is Circular Linked List ?

13. Differentiate between STACK and QUEUE data structure.

14. Define height of a tree.

15. Briefly explain AVL-tree.

16. Write two application of Stack.

17. What is M-Way Merge Srot ?

18. Define DEQUEUE.

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UG—BCA (C – 3002)

2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following :

$$10 \times 4 = 40$$

1. Define basic properties of object oriented programming language.

2. Write a Java programme to input any five elements in array by using scanner class and them find the largest element.

3. What is interface in Java ? How multiple inheritance can be implemented in Java ?

AK – 73/2

4. Wha is Package ? Write a programme in Java to create the Package.

5. What is Thread in Java ? Explain Life Cycle of a thread.

6. What is Exception ? How multiple exceptions can be handling in Java ?

7. What is Constructor ? What are the characte-ristic of constructor in Java using suitable example ?

8. What is Vector class in Java ? Explain with suitable example.

Section – B

Answer all questions of the following :

3×10 = 30

1. What is JVM ?

2. Why Java is known as platform independent language ?

3. What is Operators in Java ?

4. What is Function overloading in Java ?

5. What is synchronization ?

6. What is String in Java ? Write some string function used in Java.

7. What is Function Overriding in Java ?

8. Differentiate between Java and C++.

9. What is static member in Java ?

10. What is access Specifiers in Java ?

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UG—BCA (C—3003)

2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following :

$$10×4 = 40$$

1. What are the basic difference between Computer Architecture and Computer Organization ?

2. What is asynchronous data transfer ? What are the types of asynchronous data transfer ?

3. What is Interrupt ? Describe different types of interrupt.

AK—74/2

4. Define IEEE-754 Standard for floating . Point repersentation with suitable example.

5. Draw a block diagram for data transfer from CPU to an interface.

6. What is DMA ? What are the modes of DMA transfer ?

7. What is the difference between Hardwired control and Micro programmed ?

8. Write a Programme in assembly language to add two single bit Integer.

Sections – B

Answer **all** questions of the following : 3×10 = 30

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

2. Differentiate between RISC and CISC ?

3. Define Opcode. What is the use of Opcode in memory ?

4. Differentiate between Isolated I/O and Memory mapped I/O.

5. Define Register and their types.

6. Define use of Macro in I/C.

7. What are the controls signals used in DMA ?

8. List any three mnemonic code.

9. What is Assembly language ? How it works ?

10. Define Pipeline in computer architecture.

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UG — BCA
(C – 3004)

2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed

Section – A

Answer any **four** questions of the following :

10×4 = 40

1. What is the System Development Life Cycle ? How does it relate to Systems Analysis ?

2. What is software testing ? Elaborate all types of testing.

3. What are data flow diagrams ? How it is differ from structure charts ?

(Turn over)

4. What are various types of documentation ? Discuss each type.

5. Explain Spiral model for software life cycle and write its various activities in each phase.

6. How important is a project team in feasibility analysis ? Is it mandatory in every study ?

7. Explain the advantages of top-down design.

8. What is System Implementation Process ? Discuss merits and demerits of each System Implementation Method.

Section – B

Answer **all** questions of the following : 3×10 = 30

1. What is ISO Certification 9000 ?

2. Differentiate Deterministic and Stochastic systems.

3. What software criteria are considered for selection ?

4. Give the differences between System audit and System modification.

5. Define Gantt Chart.

6. What is zero level DFD ?

7. What is the goal of input design ?

8. Give the differences between Decision tree and Decision table.

9. What levels of quality assurance must a system meet ?

10. List various characteristics of the system.

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2022

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed

Section – A

Answer any **four** questions of the following :

10×4 = 40

1. State and Prove Bay's theorem.

2. A coin is tossed 8 times. Fi... by using binomial distribution the probability of getting

   (a) At least 3 heads (b) Exactly 3 heads

   (c) At most 3 heads.

AK – 76/3 (Turn over)

Section – B

9. Answer any **ten** questions of the following :

   3×10 = 30

   (a) Define event, sample space and statistics.

   (b) What is Poison's distribution ?

   (c) Define Quartile Deviations.

   (d) Define Chi-square.

   (e) What is Regression Coefficient ?

   (f) What is moments ?

   (g) Discuss about variance.

   (h) What is rank ?

   (i) Write difference between M.D. and S.D.

   (j) Write relation among A.M, G.M. and H.M. with examples.

   (k) Write about T-distribution.

   (l) Define conditional probability.

   (m) Write merit and demerit of Mode.

   (n) Write Karl Pearson's coefficient of correlation.

   (o) Give an example of normal distribution.

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3. Three persons A, B and C throw a die in succession till one gets a six and wins the game. Find their respective probabilities of winning.

4. Find the Mean, Median and Mode of the following data :

Marks obtained	No of students
Less than 10	5
Less than 20	9
Less than 30	17
Less than 40	29
Less than 50	45
Less than 60	60
Less than 70	70
Less than 80	78
Less than 90	83
Less than 100	85

5. Discuss Skewness and Kurtosis with example.

6. Show that correlation coefficient is independent of change of origin and scale.

7. Obtain the equation of the line of regression for the following data :

X	Y
65	67
66	68
67	65
67	68
68	72
69	72
70	69
72	71

8. Calculated the Chi-Square (χ^2) test from the following data :

	Hb%		
	Above normal	Below normal	Total
Above normal	85	75	160
Below normal	165	175	340
Total	250	250	500