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BCA (Part-II) Examination, 2023
COMPUTER ORGANIZATION

Paper – BCA-201

Time : 3 Hours]

[*Maximum Marks : 70*

Section–A (Marks : 2 × 10 = 20)

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B (Marks : 4 × 5 = 20)

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **4** marks.
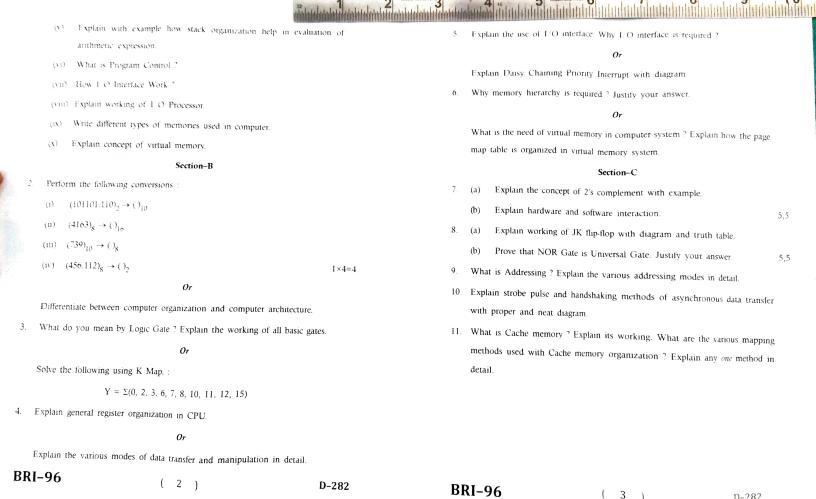
Section–C (Marks : 10 × 3 = 30)

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section–A

1. (i) What is use of 2's complement ?

(ii) Draw and explain working of half adder.

(iii) Difference between Combinational and Sequential circuits.

(iv) Draw 4 × 1 multiplexer.

(v) Explain with example how stack organization help in evaluation of arithmetic expression.

(vi) What is Program Control ?

(vii) How I O Interface Work ?

(viii) Explain working of I O Processor.

(ix) Write different types of memories used in computer.

(x) Explain concept of virtual memory.

Section–B

2. Perform the following conversions :

(i) $(101101.110)_2 \rightarrow ()_{10}$

(ii) $(4163)_8 \rightarrow ()_{10}$

(iii) $(739)_{10} \rightarrow ()_8$

(iv) $(456.112)_8 \rightarrow ()_2$ $1 \times 4 = 4$

Or

Differentiate between computer organization and computer architecture.

3. What do you mean by Logic Gate ? Explain the working of all basic gates.

Or

Solve the following using K Map. :

$$Y = \Sigma(0, 2, 3, 6, 7, 8, 10, 11, 12, 15)$$

4. Explain general register organization in CPU.

Or

Explain the various modes of data transfer and manipulation in detail.

5. Explain the use of I/O interface. Why I/O interface is required ?

Or

Explain Daisy Chaining Priority Interrupt with diagram.

6. Why memory hierarchy is required ? Justify your answer.

Or

What is the need of virtual memory in computer system ? Explain how the page map table is organized in virtual memory system.

Section–C

7. (a) Explain the concept of 2's complement with example.

(b) Explain hardware and software interaction.   5,5

8. (a) Explain working of JK flip-flop with diagram and truth table.

(b) Prove that NOR Gate is Universal Gate. Justify your answer   5,5

9. What is Addressing ? Explain the various addressing modes in detail.

10. Explain strobe pulse and handshaking methods of asynchronous data transfer with proper and neat diagram.

11. What is Cache memory ? Explain its working. What are the various mapping methods used with Cache memory organization ? Explain any *one* method in detail.

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B.C.A. (Part-II) Examination, 2023

OPERATING SYSTEM

Paper – BCA-202

Time : 3 Hours]

[Maximum Marks : 70

Section–A

(Marks : 2 × 10 = 20)

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section–B

(Marks : 4 × 5 = 20)

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **4** marks.

Section–C

(Marks : 10 × 3 = 30)

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section–A

1. (i) What is a operating system in Computer ?

   (ii) Why PCB is used in Operating System ?

   (iii) What is meant by Pre-emptive Scheduling ?

   (iv) What is waiting and response time ?

   (v) What is the necessary condition to avoid deadlock in system ?

(vi) What is the concept of Critical Section ?

(vii) What is swapping in Paging ?

(viii) Who developed Linux OS first ?

(ix) What does read() and expr do in Linux ?

(x) What is the meaning of chmod 777 ?

Section–B

2. How many layers does operating system have ? Suitable diagram.

Or

What are the difference between a 2 state process model and a 5 state process model $\bar{C}$ suitable diagram ?

3. What is Pre-emptive and Non-pre-emptive scheduling $\bar{C}$ suitable example and Is FCFS is pre-emptive ?

Or

What is convoy effect in FCFS with find out turnaround time, waiting time and maximum throughput ?

What are Deadlock Handling Methods ? Brief description.

Or

Why is it called a semaphore and what are wait() and signal() semaphore operation ?

What is Contiguous and Non-contiguous memory allocation in operating system with suitable diagram ?

Or

What are the salient features and advantage of Linux ?

What are file permission with users and groups ?

Or

What is Linux Decision-making ? Only define If–else statement with suitable syntax.

Section–C

7. Explain any *two* of the following :

(i) System calls

(ii) Types of schedulers

(iii) Context switch

(iv) Functions of operating system

8. Describe the following :

(i) MLQ with feedback scheduling

(ii) Shortest job first algorithm

9. Describe Banker's Algorithm.

10. How to implement page replacement technique–FIFO with Belady's anomaly, given preference string using 3 frame to find out page fault ?

7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

11. What do you mean by shell script and its variable with the following commands ?

(i) cat

(ii) pwd

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B.C.A. (Part–II) Examination, 2023

JAVA

Paper – BCA-203

Time : 3 Hours]

[*Maximum Marks : 70*

Section–A

(Marks : 2 × 10 = 20)

Note : Answer all *ten* questions (Answer limit 50 words). Each question carries 2 marks.

Section–B

(Marks : 4 × 5 = 20)

Note : Answer all *five* questions. Each question has internal choice (Answer limit 200 words). Each question carries 4 marks.

Section–C

(Marks : 10 × 3 = 30)

Note : Answer any *three* questions out of five (Answer limit 500 words). Each question carries 10 marks.

Section–A

1. (i) What is Tokens ?

   (ii) What is Global Variable ?

   (iii) What is Class ?

   (iv) What is Constructors ?

   (v) Define the Abstract Class.

   (vi) What is Interface ?

(vii) What is Threads ?

(viii) Define the Exception Classes.

(ix) Define the Swing.

(x) What is Choice Control ?

Section–B

2. Explain the Java Program Structure.

Or

Discuss the various data types in Java.

3. What is Array ? Explain different types of array with example.

Or

Explain the following :

(a) Instance variable

(b) Strings and vectors

4. What is a Package ? Explain the different access control for package in Java.

Or

What is the major difference between an inheritance and a class ?

5. Explain the following :

(a) Exception handling in Java

(b) Throw and Throws

Or

Explain the following :

(a) Life-cycle of thread

(b) Thread synchronization

6. Explain the following :

(a) Working with graphics

(b) Adding and Removing controls

Or

What is Event ? Explain event handling in Java with suitable example.

Section–C

7. What is Looping ? Explain the different types of loop statement with example.

8. Explain method overloading. Write a program to show the use of method overloading.

9. Explain the following :

(a) Wrapper Classes

(b) Package and Visibility controls

10. Explain the following :

(a) Inter-thread communication

(b) Implementing the runable interface

11. Explain the following :

(a) Labels

(b) Check Box

(c) Checkbox Group

(d) Dialog Box

(e) Text field

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B.C.A. (Part-II) Examination, 2023

INTERNET PROGRAMMING

Paper - BCA-204

[Maximum Marks : 70

Time : 3 Hours]

Section-A

(Marks : 2 × 10 = 20)

Note : Answer all *ten* questions (Answer limit 50 words) Each question carries 2 marks.

Section-B

(Marks : 4 × 5 = 20)

Note : Answer all *five* questions. Each question has internal choice (Answer limit 200 words). Each question carries 4 marks.

Section-C

(Marks : 10 × 3 = 30)

Note : Answer any *three* questions out of five (Answer limit 500 words). Each question carries 10 marks.

Section-A

1. (i) What is e-Mail Message ?

   (ii) What is Mailing List ?

   (iii) What do you understand by World Wide Web ?

   (iv) What is the difference between maintaining and updating a website ?

(1)

(v)   Define List type and its Tags.

(vi)   What is Hyperlink ?

(vii)   What is Cascading Style Sheet ?

(viii)   Differentiate Margin and Padding.

(ix)   What is data types in JavaScript ?

(x)   How can apply comments in JS ?

Section–B

2.   Explain Basic Internet terms and its applications.

Or

Explain anatomy of e-mail message and also describe ISP.

3.   What do you understand by domain name registration ? Explain.

Or

Explain the working of web servers.

4.   With the help of HTML code explain table layout and images attributes.

Or

What is the formatting in HTML ? Explain the various Formatting Tags in HTML.

5.   What is CSS ? Explain types of style sheets and background properties.

Or

Explain list properties in CSS.

6.   What is Client Side Scripting ? Explain comments and variables in JavaScript.

Or

Explain JS Arrays.

Section–C

7.   Explain mailing list subscribing and unsubscribing.

8.   Explain the following :

(i)   FTP

(ii)   HOST servers

(iii)   URL

(iv)   HTTP

9.   How can we create a web form in HTML ? Explain the use of form in web pages.

10.   Explain in CSS :

(i)   Border properties

(ii)   Margin and padding

(iii)   ID and Classes

11.   Explain JavaScript loops and JS pop up boxes.

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B.C.A (Part-II) Examination, 2023
CLOUD COMPUTING

Paper – BCA-205 (A)

Time : 3 Hours | | *Maximum Marks : 70*

Section A (Marks : 2 × 10 = 20)

Note : Answer all *ten* questions (Answer limit 50 words). Each question carries 2 marks.

Section B (Marks : 4 × 5 = 20)

Note : Answer all *five* questions. Each question has internal choice (Answer limit 50 words). Each question carries 4 marks.

Section C (Marks : 10 × 3 = 30)

Note : Answer any *three* questions out of five (Answer limit 500 words). Each question carries 10 marks.

Section-A

1. (i) What do you understand by Cloud Computing ?

(ii) What do you mean by Distributed Computing ?

(iii) What is the difference between public and private cloud ?

(iv) What is para-virtualization ?

(v) What is infrastructure as a service ? Give an example.

(vi) What is community cloud ?

(vii) What do you understand by Wikis ?

(viii) Write any two applications of cloud computing ?

(ix) What do you mean by cloud based security fundamentals ?

(x) Write any two benefits of cloud communication.

Section-B

2. What are the advantage of peer-to-peer computing ?

Or

What do you understand by client-server computing ?

3. Describe advantages and disadvantages of platform as a service (Paas).

Or

Describe advantages and disadvantages of infrastructure as a service (Iaas).

4. What do you understand by Amazon EC2 ? Explain all the services of Amazon EC2.

Or

Explain all the features at Amazon EC2.

5. Write a short note on cloud computing and social networking.

Or

Write a short note on web conference tools.

6. Write a short note on cloud computing and security challenges.

Or

What do you understand by Hadoop DB and draw architecture of Hadoop DB.

Section-C

7. Explain all the cloud services in detail.

8. Elaborate various pros and cons of cloud service development.

9. Elaborate all the applications of cloud computing.

10. Elaborate several cloud computing collaborating management.

11. Explain data privacy and other risk in cloud computing.

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B.C.A. (Part-II) Examination, 2023

PYTHON

Paper – BCA-206 (A)

Time : 3 Hours]   *[Maximum Marks : 70*

Section-A   (Marks : 2 × 10 = 20)

Note :—   Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B   (Marks : 4 × 5 = 20)

Note :–   Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **4** marks.

Section-C   (Marks : 10 × 3 = 30)

Note :–   Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section-A

1.   (i)   What Syntax do you use to comment out some lines in Python?

     (ii)   What do you mean by ternary expression ?

     (iii) Define a dictionary in Python.

     (iv)   What is the purpose of using namespace ?

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(v) What do you mean by Lambda function ?

(vi) Write syntax to declare a Numpy array in Python.

(vii) What syntax do you use to show the first 10 records of a table ?

(viii) When do you use reshape in a data frame ?

(ix) Which library do you include in order to plot a graph in Python ?

(x) What is the purpose of using except block in exception handling ?

Section–B

2. Write a Python program to print odd numbers lesser than 20, using range function.

Or

Explain the importance of indentation in Python.

3. Explain the concept of slicing of lists in Python.

Or

How do you return multiple values in Python ?

4. How can you generate a number between 1 and 100 randomly ?

Or

Write a program in Python to add two matrices.

5. How do you read data from a CSV file in Pandas ?

Or

How do you show the correlation between each column in a Dataframe? Explain using a suitable example.

Write a Python program to copy content of one file to another.

Or

Explain why scikit-learn module is used in Python.

Section–C

7. Explain the usage of any *five* binary operators with suitable examples in Python.

8. Explain the concept of dict comprehension using suitable examples.

9. How do you create objects and methods in Python ? Explain using suitable examples.

10. Explain the following in the context of data analysis in Python :

(i) dropna

(ii) iloc

(iii) apply

(iv) sum

(v) describe

11. Write a program to plot a histogram for marks obtained in your five subjects. You may make suitable assumptions for marks and subjects, as per choice.