 UG — BCA (C – 4001)

2025

(Session : 2020-23 & 2021-24)

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. Outline the developmental journey of Android. Examine the framework and components of Android's architecture.

2. Explain Android development tools and its important components.

3. Explain the Activity Life Cycle of an Android with a neat diagram.

4. Create an Android project to display Hello world. Also, write its step to deploy it on USB connected Android device.

5. What is button control ? How it is differ from text field and the toggle button.

6. What is SQLite ? List down its advantages and disadvantages. Explain insert operations in SQLite database.

7. What is a Layout in Android ? List out the different types of layouts. Explain any two layout.

8. Design a simple Android application to find the maximum between two numbers and display result in toast (Write Java and XML Code).

Section – B

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

9. What is the difference between Dalvik Virtual Machine and Android Run Time ?

10. What is AVD (Android Virtual Device) ?

11. What is Bundle Passing ?

12. Discuss about the Splash Screen.

13. What is Gradle ?

14. Explain Spinner Widget.

15. What is .apk File ?

16. What is the use of drawable in Res folder ?

17. What is AndroidManifest.xml file ?

18. Why is XML used for frontend development in Android ?

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 UG — BCA (C – 4002)

2025

(Session : 2020-23 & 2021-24)

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 : 10×4 = 40

1. Define Operating System. Explain the functions and layered structure of an Operating System in detail.

2. Explain how deadlock can be detected in a system using the Resource Allocation Graph. What is a safe state in deadlock avoidance ? Also, discuss recovery from deadlock mechanisms.

3. What is a Process ? Explain different states of a process with the help of process state transition diagram.

4. What are different types of an operating system ? Discuss any two types of OS in detail.

5. What is segmentation in an operating system ? Explain the role of a segment table ?

6. What are preemptive and non-preemptive scheduling ? Draw the gantt chart and calculate the completion time, turnaround time, waiting time, and average waiting time using SJF scheduling.

Process	Arrival Times(MS)	Burst Time(Ms)
P1	0	6
P2	2	8
P3	4	7
P4	6	3

7. Explain the concept of directory structure in operating systems. Discuss different types of directory structures with their advantages and disadvantages.

8. Consider a disk with 200 cylinders numbered from 0 to 199. The disk queue has pending requests for I/O at cylinders : 98, 183, 41, 122, 14, 124, 65, 67 The disk head is currently at cylinder 53. Calculate the total head movement (seek time) to satisfy all requests using :

   (a) FCFS (First-Come, First-Serve)

   (b) SSTF (Shortest Seek Time First)

Group – B

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

9. What is demand paging ?

10. Define page fault.

11. What are the protection mechanisms used in Storage Management ?

12. What is free-space management in file systems ?

13. What is a file system in an operating system ?

14. Differentiate between contiguous and non-contiguous memory allocation.

2025

(Session : 2020-23 & 2021-24)

Time : 3 hours

Full Marks : 70

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

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Answer from both the Groups as directed.

Group – A

Answer any **four** questions of the following : 10×4 = 40

1. Define HTML and briefly describe its role in the context of the World Wide Web. Explain the concept of a tag and an attribute with suitable examples.

2. Explain the role of the <img> tag in adding images to an HTML page. Describe the four most critical attributes of the <img> tag detailing the purpose of each.

3. Explain the table tags and their different attributes with an example.

4. Define CSS and its usages. What are the different methods to add CSS to a webpage with an example ?

5. Detail the concept of a PHP Session, explaining how the server and the client collaborate to track a user across multiple requests.

6. Define selectors. Explain different types of CSS selectors with an example.

7. Create a form to store the details of Employee (Id, Name, Address, Gender, Designation, Email Id and Mobile) (use proper html form elements). Write a PHP code to insert the records of employee in Emp table of BBMKU database.

8. Discuss the standard procedure for Using PHP to Access a Database (e.g., MySQL), outlining the three main stages : Connection, Query Execution, and Result Handling.

Group – B

Answer **all** questions. 3×10 = 30

9. What is padding in Box model ?

10. What is <o1> tag used for ?

11. Differentiate between echo and print statement used in PHP.

12. What are and tags ?

13. What are the main characteristics of a PHP variable ?

14. Define <Marquee> tag.

15. What is difference between HTML and XHTML ?

16. How can you add comments in a HTML ?

17. Write a program in PHP to check the year whether the year is leap year or not.

18. What are CSS backgrounds, list the properties ?

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 UG — BCA (C – 4004)

2025

(Session : 2020-23 & 2021-24)

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 : 10×4 = 40

1. Discuss the role of the Common Language Runtime (CLR) in the execution of .NET applications.

2. Explain the concept of an Integrated Development Environment (IDE) and its importance in modern software development. Also discuss the core components of visual studio.

3. Explain various looping statements available in C#. Write a console program is C# to check the number whether the number is prime or not.

4. What is an assembly ? Explain all the types of assemblies in detail.

5. List the built in dialog controls in C#. Explain the use of Save File Dialog control with example.

6. What is Windows Forms ? Explain any five Windows Form Controls with its majore properties and methods.

7. What is the ADO. Net model ? Describe its components and highlight some important classes used for database handling.

8. Write a program to create a login page in C# and verifying user credentials against a SQL Server database.

Group – B

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

9. What is Common Type System (CTS)?

10. Write a code to add item in a ComboBox control.

11. Write short notes on JIT.

12. Define keywords. List any five keywords available in C#.

13. What does option explicit refer to ?

14. Define Framework Class Library (FCL).

15. What is DAtaAdapter ?

16. Write short notes on DataGridVeiw control.

17. Define timer control and write its two properties.

18. Write a code to create TextBox control at run time.

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15. What are different memory access methods ?

16. What causes holes in memory ?

17. Explain swapping in OS.

18. What is memory compaction ?

 UG — BCA (C – 4005)

2025

(Session : 2020-23 & 2021-24)

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 : 10×4 = 40

1. Explain the layers of the TCP/IP model and compare them with the OSI model.

2. Define network topology. Compare and contrast star, ring and bus topologies.

3. What are different error detection technique in data link layer ? A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is $x^4 + x + 1$. What is the actual bit string transmitted ?

4. Discuss flow control and its importance in reliable data transmission. Explain important flow control mechanisms used in data link layer.

5. What are the services provided by network layer is OSI Model ? Compare adaptive and non-adaptive routing algorithms.

6. What is congestion in a network ? Describe the leaky bucket and token bucket algorithms.

7. What are the important features of transport layer ? Describe the process of establishing a TCP connection using the three-way handshake.

8. Discuss the role of application layer protocols in enabling user-level services.

Group – B

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

9. What is the role of Parity bits in error detection ?

10. What is a repeater in a network ?

11. Define logical and physical addressing.

12. What is the difference between classful and classless addressing ?

13. Define guided and unguided transmission media.

14. What is subnetting ?

15. List the important functions of data link layer.

16. What is a port number ? Is it different from IP address. Explain briefly.

17. Define Telnet and its use.

18. What does SMTP do in networking ?