BCA(IV) — Java
Prog. (BC – 401)

2023
(Session : 2021-24)
(Paper ID : 14006)

Time : 3 hours

Full Marks : 80

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

The questions are of equal value.

Answer any five questions.

1. What is the purpose of creating objects ? How can you create objects in Java ?
2. Explain the two compilation phases of Java program.
3. What is method overriding ? Write a Java program to explain method overriding.
4. What is the use of super keyword ? Explain with example.

5. Write a Java program that calculates and prints the factorial of all numbers from 1 to N, where N is a user-input positive integer.

6. 'Java supports the concept of multiple inheritance through interface.' Explain, in detail, with an example.

7. Explain basic feature of Java.

8. Write a program to use various method like start (), stop (), yield (), suspend (), sleep () and wait () of multithreading.

9. Describe abstract methods and abstract classes. List the rules for implementing abstract methods.

10. Write an applet program that draws a circle, a line, an arc and a polygon inside the applet's visible area.

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BCA(IV) — Comp. Graph. & MM
(BC – 402)

2023
(Session : 2021-24)
(Paper ID : 14007)

Time : 3 hours

Full Marks : 80

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

The questions are of equal value.

Answer any five questions.

1. What is Computer Graphics ? Explain the applications of Computer Graphics in details.
2. What is Boundary Fill Algorithm ? Differentiate between Boundary Fill and Flood Fill Algorithm in Computer Graphics.
3. Discuss Mid Point Circle Algorithm. Provide steps to draw a circle using Midpoint Circle Algorithm.

4. What is Transformation in Computer Graphics ? Explain 2D transformation with example.

5. Explain Rotation, Reflection and Scaling of Straight lines of polygon with suitable example.

6. What is Multimedia ? Draw the block diagram of multimedia and explain all the components.

7. Write a program to draw a line with two end points based on the Digital Differential Analyzer Algorithm.

8. What is hard copy output device ? Discuss the types of hard copy output device in details.

9. What is Color Space Model ? Explain RGB and CMYK Color Model with diagram.

10. Write short notes on any two of the following :
    (a) Virtual Reality
    (b) Impact Printer
    (c) Flat Panel Display
    (d) Graphics Software

BCA(IV) — Oper. Sys. & Linux
(BC – 403)

2023

(Session : 2021-24)

(Paper ID : 14008)

Time : 3 hours

Full Marks : 80

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

The questions are of equal value.

Answer any five questions.

1. What is Operating System ? Explain different types of operating system in brief.
2. What do you mean by Scheduler ? Explain short-term, medium-term and long-term scheduler with the help of a diagram.
3. What is Deadlock ? Explain different necessary conditions for deadlock to occur. Explain deadlock prevention and deadlock avoidance in brief.

4. What is Process Control Block (PCB) ? Explain it with a diagram. What is Context Switching ?

5. What is Virtual Memory ? Explain the concept of Virtual Memory Management Technique. Mention its advantages.

6. What is Paging and Segmentation ? Differentiate paging and segmentation.

7. Describe the structure of Unix File System. Write down the different categories of files. Also explain various file access permissions.

8. Write a shell script to find the sum of digits of a given number inputted through keyboard.

9. Explain any **four** of the following commands of UNIX with syntax and example :

   (a) Who

   (b) ls

   (c) Kill

   (d) RM

   (e) Cat

   (f) Echo

10. Write short notes on any **four** of the following :

(a) Spooling

(b) Waiting time

(c) Turnaround time

(d) Throughput

(e) Swapping

(f) Synchronization

2023

(Session : 2021-24)

(Paper ID : 14018)

Time : 3 hours

Full Marks : 80

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

The questions are of equal value.

Answer any five questions.

1. What is the importance of different models in Software Engineering ? Explain any three Process Models with examples which are commonly used.

2. Explain with suitable illustration about spiral model. Also explain its advantages and disadvantages. Compare it with prototyping model.

3. What is DFD ? What are the rules for designing DFD ? What are the various tools used for designing it ?

4. Explain the various phases of SDLC. Briefly explain the prototyping model.

5. (a) Differentiate between Program and Software.

   (b) Explain the role of System Analyst.

6. Explain the following terms in context of software Engineering :

   (a) Debugging

   (b) Verification

   (c) User Interface

   (d) Repairability

7. (a) What is Risk Management ? Explain five risk management techniques.

   (b) How can metrics be helpful in software process improvement ? Explain.

8. What is SRS ? List and explain components of an SRS.

9. What are the categories of case tools ? Explain also five benefits of using case tools.

10. (a) What is emergence of software Re-engineering ? Explain it.

(b) Discuss the software and software characteristics.