# B.C.A. 4th Semester (Honours) Examination, 2024 (CBCS)

## Subject : Computer Application

## Course : BCA-401

**Time: 4 Hours** **Full Marks: 80**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as applicable.*

*Answer* Question No. 1 *and* any four *from the rest.*

**1.** Answer *any eight* questions: 2×8=16

(a) What is knowledge engineering?

(b) Why system documentation is needed in any software project?

(c) What are legacy systems?

(d) What is lines of code (LOC)?

(e) What is economical feasibility of a software project?

(f) What is unit testing?

(g) What is coupling in context of software design?

(h) What is meta model?

(i) What are test cases?

(j) What is context diagram?

(k) What is control flow graph?

(l) What are use cases of a system?

**2.** What do you mean by functional independence of a module? Describe different types of cohesion that may exists in a module. 2+14

**3.** Draw a DFD of Library Information system (upto level 2). What is data dictionary? 12+4

**4.** Differentiate between black box and white box testing approach. Discuss path coverage based testing approach with a suitable example. 4+12

**5.** Write down the characteristics of a good SRS document. Differentiate between process oriented design and data oriented design. 8+8

**6.** What are the issues that may exist while making software cost estimation? Briefly explain basic COCOMO. What is CASE tool? 3+10+3

**Please Turn Over**

*BCA-IV/BCA-401/24*

8×2=16

**7.** Write short notes (*any two*):

(a) Software Quality Assurance

(b) Software Re-Engineering

(c) Stress Testing

(d) Work breakdown structure

2.

3.

4.

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# B.C.A. 4th Semester (Honours) Examination, 2024 (CBCS)

## Subject : Computer Application

## Course : BCA-402

## (Introduction to Microprocessor)

**Time: 4 Hours** **Full Marks: 80**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as applicable.*

*Answer* Question No. 1 *and* any four *from the rest.*

**1.** Answer *any eight* questions: 2×8=16

(a) What do you mean by unconditional jump? Give example.

(b) State differences between CALL and RET instruction.

(c) Give example of DAD instruction execution.

(d) What is subroutine?

(e) What is stack pointer?

(f) What do you mean by non-maskable interrupt?

(g) What is PSW?

(h) Compare between RAL and RLC.

(i) State the functions of PUSH and POP instruction.

(j) What are the externally initiated signals in 8085?

(k) Why in 8085 microprocessor Address bus is unidirectional and data bus is bidirectional?

(l) What do you mean by microinstruction?

**2.** Describe the working of Flag register in 8085 microprocessor. Draw the timing diagram for instruction MOV A, B in 8085 microprocessor. Discuss externally initiated signals of 8085 microprocessor including interrupt. 5+6+5

**3.** Explain with example different addressing modes in 8085 microprocessor. Explain briefly the demultiplexing of $AD_7$-$AD_0$ in 8085 microprocessor. Write a 8085 program to find GCD of two eight bit numbers. 8+3+5

**4.** Explain the function of each of the following instruction with suitable example: SUI, XCHG, SHLD, SPHL. Discuss the use of instructions RIM and SIM with suitable examples. 12+4

**Please Turn Over**

5. Discuss the working of instructions RST0 to RST7 in 8085 μp. Write a program using 8085 instruction set to transfer a block of memory of 10 bytes in reverse order. 8+8

6. Explain the functions of following 8085 μp pins: READY, SID, SOD, INTR, HLDA, TRAP, RST 5.5 and RESET OUT. 2×8

8×2=16

7. Write short notes on (*any two*):

   (a) DMA operation

   (b) Memory mapped and peripheral I/O

   (c) Software model of 8086 microprocessor

   (d) Arithmetic Instructions of 8085 microprocessor

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# B.C.A. 4th Semester (Honours) Examination, 2024 (CBCS)

## Subject : Computer Application

## Course : BCA-403

## (Internet and E-Commerce)

**Time: 4 Hours** **Full Marks: 80**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as applicable.*

*Answer* Question No. 1 *and* any four *from the rest.*

**1.** Answer *any eight* questions: 2×8=16

(a) What do you mean by World Wide Web?

(b) What is Ethernet?

(c) What is Internet Architecture Board?

(d) Differentiate Internet and Intranet.

(e) What is the significance of Electronic Mail?

(f) What do you mean by Pop-ups and Pop-up Blockers?

(g) What do you mean by Cookies?

(h) What is digital signature?

(i) What is electronic commerce?

(j) What is HTML?

(k) What is Router?

(l) What do you mean by frame tag?

**2.** Explain TELNET in details. What is DNS? What are the features of good website? What do you mean by VPN? What is HTTP? 6+2+4+2+2

**3.** What is Hyperlink? What do you mean by Anchor tag? Discuss about the different types of FTP. Describe TCP/IP reference model with diagram. Briefly explain the various components of Internet. 2+2+4+4+4

**4.** Write short notes on (*any four*): 4×4=16

(a) Search Engines

(b) POP-3

(c) MIME

(d) AAA

(e) SMTP

(f) JavaScript

5. What are the different types of E-Commerce? Give one brief example of each. Explain B2B E-Commerce using the following example:

"A book distributor stocks a large number of books, which he distributes via a large network of book sellers. Assume that the distributor has stocks of books of a large number of publishers and the book sellers order books as and when their stock is low. Distributors give one month of time to the book sellers for payment." 4+12

6. Why is security important in E-Commerce? What are the security issues to be taken into account while designing a security system for E-Commerce? What is Firewall? What are the functions of a Firewall? 4+6+2+4

7. What types of electronic payment systems are required in E-Commerce? Why are there different types of payment systems? Explain the necessary characteristics of each type of payment system and also give examples. 2+2+12

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# B.C.A. 4th Semester (Honours) Examination, 2024 (CBCS)

## Subject : Computer Application

## Course : BCA-404

## (Java Programming)

**Time: 4 Hours** **Full Marks: 80**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as applicable.*

*Answer* Question No. 1 *and* any four *from the rest.*

**1.** Answer *any eight* questions: 2×8=16

(a) What do you mean by wrapper classes?

(b) What is JVM?

(c) Define Keywords.

(d) Write the uses of "Final" Keywords.

(e) What is constructor?

(f) When do we declare a method in a class abstract?

(g) What is the difference between suspending and stopping a thread?

(h) What do you mean by finally block?

(i) What is a local applet?

(j) What is method overloading?

(k) What do you mean by JDK?

(l) Define JAVA Tokens.

**2.** (a) Define Inheritance. Discuss different types of Inheritances in Java.

(b) Define method overriding. Explain method overriding with the help of suitable example.

(c) Discuss the different levels of access protection available in Java. 2+4+2+4+4

**3.** (a) What is Interface? Explain with example, how multiple inheritance is implemented with the help of interface.

(b) Discuss different Java API Packages.

(c) Write steps for creating a user define package. 2+5+4+5

**4.** (a) What are the differences between multithreading and multitasking?

(b) Write a multithreaded program to print "BCA" and "Computer Science" at an interval of one second.

(c) How do we set priorities of a thread? 4+8+4

**5.** (a) What do you mean by Exception Handling? Write different steps for Exception Handling Mechanism.

(b) How many catch blocks can we use with one try block? Explain with example.

(c) Write a program in Java to find GCD of two integer number.

**6.** (a) Define Applet. How does applet differ from application program?

(b) Discuss life cycle of an Applet.

(c) Explain with example, how many arguments can be passed to an applet using <PARAM> tags. 2+3+5+6

**7.** Write short notes on (*any two*): 8×2=16

(a) String Handling

(b) Stream Classes

(c) Data types in Java

(d) Autoboxing and Unboxing in Java

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# B.C.A. 4th Semester (Honours) Examination, 2024 (CBCS)

## Subject : Computer Application

## Course : BCA-405

## (Computer Graphics)

**Time: 4 Hours** **Full Marks: 80**

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers in their own words as far as applicable.*

*Answer* Question No. 1 *and* any four *from the rest.*

**1.** Answer *any eight* questions: 2×8=16

(a) Define CRT.

(b) What is Frame Buffer?

(c) What is Resolution?

(d) Write the differences between LED and LCD.

(e) What is the use of Animation?

(f) What is Refresh Rate?

(g) Write the differences between multimedia system and multimedia application.

(h) What is video controller?

(i) What is Flicking?

(j) Define GUI.

(k) Write the features of inkjet printers.

**2.** (a) What is polygon clipping? Explain Sutherland Hodgman algorithm for polygon clipping.

(b) Describe various types of colour models and selection tools used in Computer Graphics. (2+6)+8

**3.** (a) Explain 3D basic geometric transformation with an example.

(b) Digitize the line with endpoints (2, 2) and (10, 5) using Bresenham's line drawing algorithm and explain its working principles. 8+8

**4.** (a) What is Raster Scan System? How does it work?

(b) Explain the commonly used configuration for a Graphics Workstation.

(c) What is image compression? 8+6+2

**5.** (a) Given a 3D object with coordinate points A (0, 3, 3), B (3, 3, 6), C (3, 0, 1) and D (0, 0, 0). Apply the scaling parameter 2 towards 'X' axis, 3 towords 'Y' axis and 3 towards 'Z' axis and find the new coordinates of the object.

(b) Describe any method for visible surface detection. 10+6

**6.** (a) Define and compare between Bezier curve and B-Spline curve.

(b) Explain any four output functions of Graphical Kernel System (GKS). 12+4

**7.** Write short notes (*any two*): 8×2=16

(a) PHIGS

(b) Window port and View port

(c) Composite Transformation

(d) Polygon clipping

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