20BB741

M.C.A. EXAMINATION, 2021

(Second Semester)

(C Scheme) (Main Only)

(MCA)

MCA102C

OBJECT ORIENTED PROGRAMMING USING JAVA

Time : 2½ Hours]   [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (i)   Write any *three* advantages of object oriented programming methodology.
    (ii) Differentiate between a class and strucutre.
    (iii) Explain the meaning of public static void main (string args[]) in Java.
    (iv) Define a wrapper class in JAVA.
    (v)   Explain the difference between Exception and Error in Java.

2. (i)   What are objects ? How are they created from a class ? Illustrate with example.
    (ii) Write and explain any *five* data types supported by Java with examples.

3. (i)   What do you mean by implicit and explicit type conversions ? Illustrate with suitable example.
    (ii) Write the steps to create your own package. Describe how a package can be accessed.

4. With the help of suitable example explain function overloading. Write a program in Java to overload a function to find the sum of two integers, sum of two floating point numbers and sum of three numbers.

5. (i) Define a constructor. List and explain different types of constructors supported by JAVA.

   (ii) Briefly explain different types of access specifiers for data members supported by JAVA.

6. What do you mean by "dynamic method dispatch" ? With the help of suitable example, explain it. Also write the advantages and disadvantages, if any, associated with DMD.

7. Write a program in Java to create a user interface to perform the arithmetic division. The user enters two numbers through command line arguments as Num1 and Num2, perform division and returns the remainder. If Num1 and Num2 are not integers, the Number Format Exception has to be generated. If Num2 is zero, Arithmetic exception has to be generated.

8. Write a program to create three threads in your program and context switch among the threads using sleep functions.

9. With the help of suitable diagram explain the JAVA. Applet architecture. Also list and explain any *five* types of applets.

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M.C.A. EXAMINATION, 2021

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MASTER OF COMPUTER APPLICATIONS

MCA104C

Operating System

Time : 2½ Hours]   [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (i)   Write three features of distributed operating systems.

    (ii) Explain the term "thrashing."

    (iii) Define a semaphore.

    (iv) Differentiate between kernel and shell of an operating system.

    (v)   Write any *three* features of windows NT as opertaing system.

2. (i)   Differentiate between system programs and system calls.

    (ii) List and explain any *five* services offered by any operating system.

3. Differentiate between preemptive and non-preemptive shortest job first scheduling. Consider the following set of processes :

Process	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Draw the Gantt chart for preemptive and non-preemptive SJF scheduling. Calculate the average waiting time for both cases.

4. Explain the term fragmentation. Compare and contrast internal and external fragmentation. Explain with the help of example. How external fragmentation can be solved with paging.

5. (i) Compare and contrast the contiguous and non-contiguous memory allocation schemes.

   (ii) Write and explain any *two* page replacement algorithm with the relative advantages and disadvantages of each.

6. List the different types of files supported by the operating systems. Also write their purpose.

7. List the essential characteristics of monitors in operating systems. What are the components of a monitor ? Explain, how a monitor helps in implementation of synchronization in an operating system.

8. Define a deadlock. List the necessary and sufficient conditions for a deadlock. Write an algorithm to detect deadlock when there are multiple instances of resources.

9. (i) Define a shell. List and explain different types of shells.

   (ii) Write any *five* characterisites of LINUX operating system.

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M.C.A. EXAMINATION, 2021

(Second Semester)

(C Scheme) (Main Only)

(MCA)

MCA106C

WEB TECHNOLOGIES

Time : 2½ Hours]   [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Explain the following :

    (a) DNS

    (b) Meta-Tags

    (c) Variables in Java-Script

    (d) Open-Source CMS

    (e) Objectives in Java-Script.

2. What is Internet ? Explain the basic infrastructure of Internet and its working.

3. (a) What is a Search Engine ? Explain the working of a search engine.

    (b) How forms are created in HTML ? Explain with the help of an example.

4. What are Cascading Style Sheets ? Explain its types with an example of each.

5. (a) Explain variables, data-types and operators in JavaScript.

   (b) Write a JavaScript code to validate e-Mail.

6. What is Microsoft .NET technology ? Explain its architecture and working in detail.

7. (a) What is Server-Side Scripting ? Explain its advantages and disadvantages.

   (b) Write a short note on ADO.NET.

8. (a) Contrast and compare Web 1.0, 2.0, 3.0, and 4.0 standards.

   (b) Explain SOAP brief.

9. Explain the following :

   (a) AJAX

   (b) JSON

   (c) Digital Marketing.

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M.C.A. EXAMINATION, 2021

(Second Semester)

(C Scheme) (Main Only)

(MASTER OF COMPUTER APPLICATIONS)

MCA-154-C

SOFTWARE TESTING & QUALITY ASSURANCE

Time : 2½ Hours]   [Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Differentiate between :
   (i)   Fault and error
   (ii) Alpha testing and beta testing
   (iii) Real time systems and safety critical systems
   (iv) Quality audit and review
   (v)   Software quality measurement and process adjustment

2. (i) Write at least five factors for determining the limits of software testing.
   (ii) Software testing is an incremental process. Justify the statement.

3. Write and explain the different integration strategies.

4. (i) Define ad-hoc testing ? How is it performed ? Write *three* challenges faced during ad-hoc testing.
   (ii) Describe the practical limitations of software testing.

5. List and explain any three techniques for testing of concurrent programs. Also write the challenges faced during testing of concurrent programs.

6. How can quality be integrated and make a difference in the whole process of software development, starting as specification and ending at customer site ?

7. (i) Differetiate between verification and validation process during software project development.

    (ii) Write any *seven* characteristics of a good software quality planning tool.

8. Write the *six* reasons based on which the ISO 9000 : 2000 can be called successful. Also write any *six* reasons based on which ISO 9000 : 2000 may not be considered as popular as ISO 9004 : 2000.

9. Write short notes on the following :

    (i) Completed check lists

    (ii) Acceptance decisions.

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M.C.A. EXAMINATION, 2021

(Second Semester)

(C Scheme) (Main Only)

MCA164C

CYBER SECURITY

Time : 2½ Hours]   [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Define Cloud Computing.

   (b) What is Buffer Overflow ?

   (c) Define Chain of Custody Concept.

   (d) Describe Kerberos.

   (e) Define IPR.

2. Discuss Indian IT act and cybercrime scenario in India.

3. Describe the following :

   (a) Cyber Cafe and Crimes

   (b) Botnets

   (c) Need of cyber laws.

4. (a) Discuss Attacks on Mobile/Cell phones.

    (b) Discuss credit card frauds in today's scenario.

5. (a) Explain Proxy servers and their usage.

    (b) How passwords can be cracked ? Write the features of strong passwords.

6. Explain the need for Computer Forensics. Also discuss digital evidences.

7. Describe the following :

    (a) Anti Forensics

    (b) Privacy threats in social networking sites.

8. Explain the security and privacy implications from cloud computing.

9. Describe the following :

    (a) Safe computing guidelines and computer usage policy

    (b) Importance of end point security in organizations.