

**MCA (TWO YEAR) I SEMESTER and M.Sc. in COMPUTER SCIENCE I SEMESTER
EXAMINATION 2021-22**

CS - 204 : Object Oriented Programming

Time : 4.30 hours

Max. Marks : 70

Instructions

1. The Question Paper contains 08 questions out of which you are required to answer any 04 questions. The question paper is of 70 marks with each question carrying 17.5 marks.
प्रश्नपत्र में आठ प्रश्न पूँछे गये हैं जिनमें से 4 प्रश्नों का उत्तर देना है। प्रश्नपत्र 70 अंकों का है, जिसमें प्रत्येक प्रश्न 17.5 अंक का है।
2. The total duration of the examination will be **4.30 hours** (Four hours and thirty minutes), which includes the time for downloading the question paper from the Portal, writing the answers by hand and uploading the hand-written answer sheets on the portal.
परीक्षा का कुल समय 4.30 घंटे का है जिसमें प्रश्नपत्र को पोर्टल से डाउनलोड करके पुनः हस्तलिखित प्रश्नों का उत्तर पोर्टल पर अपलोड करना है।
3. For the students with benchmark disability as per Persons with Disability Act, the total duration of examination shall be **6 hours** (six hours) to complete the examination process, which includes the time for downloading the question paper from the Portal, writing the answers by hand and uploading the hand-written answer sheets on the portal. .
दिब्यांग छात्रों के लिये परीक्षा का समय 6 घंटे निर्धारित है जिसमें प्रश्नपत्र को पोर्टल से डाउनलोड करना एवं हस्तलिखित उत्तर को पोर्टल पर अपलोड करना है।
4. Answers should be hand-written on a plain white A4 size paper using black or blue pen. Each question can be answered in upto 350 words on 3 (Three) plain A4 size paper (only one side is to be used).
हस्तलिखित प्रश्नों का उत्तर सादे सफेद A4 साइज के पन्ने पर काले अथवा नीले कलम से लिखा होना चाहिये। प्रत्येक प्रश्न का उत्तर 350 शब्दों तक तीन सादे पृष्ठ A4 साइज में होना चाहिये। प्रश्नों के उत्तर के लिए केवल एक तरफ के पृष्ठ का ही उपयोग किया जाना चाहिए।
5. Answers to each question should start from a fresh page. All pages are required to be numbered. You should write your Course Name, Semester, Examination Roll Number, Paper Code, Paper title, Date and Time of Examination on the first sheet used for answers.
प्रत्येक प्रश्न का उत्तर नये पृष्ठ से शुरू करना है। सभी पृष्ठों को पृष्ठांकित करना है। छात्र को प्रथम पृष्ठ पर प्रश्नपत्र का विषय, सेमेस्टर, परीक्षा अनुक्रमांक, प्रश्नपत्र कोड, प्रश्नपत्र का शीर्षक, दिनांक एवं समय लिखना है।

Questions

(1)

- (1.1) Define an object and its characteristics in the context of Object-Oriented concept using real-world example. [7.5 marks]
- (1.2) What are the important features of the Object-Oriented concept? Explain each of the features with a suitable example. [10 marks]

(2)

- (2.1) Give a real-world example where polymorphism, encapsulation and inheritance are used. [9.5 marks]
- (2.2) Write a Java program to implement the above example. [8 marks]

(3)

- (3.1) What are the Buzzwords in Java. Explain each buzzword with a suitable example. [10 marks]
- (3.2) Explain the working function of JVM, JRE, and JDK with a suitable example. [7.5 marks]

(4)

- (4.1) What is constructor in Java? Explain the features and limitations of constructor with a suitable example. [5 marks]

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- (4.2) Write a Java program to implement different types of constructors in Java. [6.5 marks]
- (4.3) Explain constructor overloading and overriding in Java with a suitable example. [6 marks]
- (5)
- (5.1) Define access modifier in Java. [5 marks]
- (5.2) How many types of access modifiers are available in Java? Explain each one with a suitable example. [12.5 marks]
- (6)
- (6.1) What is exception handling in Java? How many types of exceptions are available in Java? Explain your answer with a suitable example. [4 marks]
- (6.2) What are the common scenarios of Java exceptions. [3 marks]
- (6.3) What are the exception keywords in Java? Explain each keyword with a suitable example. [6 marks]
- (6.4) Explain Java exception propagation with a suitable example. [4.5 marks]
- (7)
- (7.1) What is a stream and what are the types of Streams and classes of the Streams? [3 marks]
- (7.2) What is a memory-mapped file in Java? [3 marks]
- (7.3) Given two files with list of words, write a program to show the common words in both files. [3 marks]
- (7.4) How do you convert an InputStream to ByteArray in Java? Give an example. [4 marks]
- (7.5) What is RandomAccessFile? What is the benefit of using RandomAccessFile? [4.5 marks]
- (8)
- (8.1) What do you mean by Multithreading? Why is it important? [4 marks]
- (8.2) What is Thread in Java? [3 marks]
- (8.3) What are the two ways of implementing thread in Java? [3 marks]
- (8.4) What's the difference between thread and process? [3 marks]
- (8.5) Explain the meaning of the deadlock and when it can occur? [4.5 marks]

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