M.Sc. (Part–I) Semester–II (CBCS Scheme) Examination

COMPUTER SCIENCE

Paper–2MCS1 Java Programming

Time : Three Hours] [Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory.

(2) Assume suitable data wherever necessary.

(3) Illustrate your answers with the help of suitable diagrams wherever necessary.

1. (a) Explain Java Development tools with suitable example. 7

(b) Explain :

(i) JVM

(ii) Type Casting and Type Conversion 8

OR

2. (a) Explain switch statement with suitable example. 7

(b) Describe the simple data types provided by Java Language. 8

3. (a) What is Garbage Collection ? How Java handles it ? Explain. 6

(b) What is method overloading ? Explain with example. 7

OR

4. (a) What is mean by class and object ? Explain with suitable example. 7

(b) How data members of an object can be initialized ? Explain with example. 6

5. (a) Write a program in Java to find out smallest and largest elements of an array. 7

(b) Explain method overriding with suitable example. 6

OR

6. (a) What is meant by Interface ? How is it implemented ? Explain. 7

(b) What is Package ? How to create and use it ? Explain. 6

7. (a) What is Layout manager ? Explain Grid Layout with example. 7

(b) Explain :

(i) Applet tag

(ii) Frame 6

OR

8. (a) State and explain the life cycle of an APPLET. 7

(b) How the parameters are passed to Applets ? Explain with example. 6

9. (a) Explain different states of Threads in Java. 6

(b) Describe and four built in exceptions supported by Java. 7

OR

10. (a) Explain in brief Java I/O classes and interfaces. 7

(b) What are Thread Priorities ? Explain. 6

11. (a) Explain following controls :

(i) List

(ii) Checkbox 6

(b) Describe in brief handling mouse and keyboard events. 7

OR

12. (a) What is delegation event model ? Explain. 7

(b) Explain :

(i) Adapter classes

(ii) Event classes. 6

M.Sc. (Part—I) Semester—II (CBCS Scheme) Examination

COMPUTER SCIENCE

(Software Engineering)

Paper—2MCS3

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Figures to the right indicate **full** marks.

(2) Assume suitable data wherever necessary.

(3) Illustrate answer with the help of neat sketches.

1. (a) What is Software Engineering ? Explain layered model. 7

(b) What are the various steps in feasibility study ? Explain. 6

OR

2. (a) Explain various types of Software applications in detail. 7

(b) Explain various umbrella activities. 6

3. (a) Describe "how the framework activities and the actions and tasks that occur within each framework activity" are organized with respect to sequence and time. 7

(b) Explain V-model for software engineering. 6

OR

4. (a) Explain evolutionary models for software engineering. 6

(b) What is agility ? Explain agility principles in detail. 7

5. (a) Explain : Inception, Elaboration, Validation. 7

(b) Explain domain analysis. Give examples. 7

OR

6. (a) What are the elements of requirements analysis ? Explain in detail. 7

(b) What is data modeling ? Explain. 7

7. (a) Explain fundamental concepts of design. 7

(b) Explain information hiding. Give examples. 7

OR

8. (a) How to analyse architectural design ? Explain architectural design method. 7

(b) What are the typical design errors in user interface design ? Explain Golden rules for the same. 7

9. (a) What are the generic characteristics of high-quality software ? Explain. 7

(b) What are the set of Pragmatic goals for software quality assurance ? 6

OR

10. (a) What measures and metrics can be used to assess the quality of requirements and design models, source code and test cases ? 7

(b) What are the ISO 9001 : 2000 Standard ? Explain. 6

11. (a) Explain integration testing in detail. 6

(b) Why debugging is difficult ? Explain debugging process. 7

OR

12. (a) Explain Black Box testing. 7

(b) What is boundary value analysis ? Explain. 6

M.Sc. Semester—II (CBCS Scheme) Examination

COMPUTER SOFTWARE (NEW)

(Advanced Database Management System)

Paper—VII

Time : Three Hours] [Maximum Marks : 80

1. (a) Explain the Physical database design and tuning. 6

   (b) What is database security ? Explain with example. 7

OR

2. (a) What is normalization ? Explain 2NF and 3NF with example. 7

   (b) Explain the following :—

   (i) Database security challenges.

   (ii) Audit Trail. 6

3. (a) Explain the concept of spatial data management. 7

   (b) Explain N-tier architecture with example. 7

OR

4. (a) Explain the database design of ORDBMS. 7

   (b) Explain the concept of databases and Web architecture. 7

5. (a) Explain the following :—

   (i) Interoperation parallelism.

   (ii) Intra-operational parallelism. 6

   (b) Explain the DDBMS architecture. 7

OR

6. (a) Explain the following :—

   (i) Intra-query parallelism.

   (ii) Inter-query parallelism. 6

   (b) Explain :—

   (i) Distributed data storage

   (ii) Availability. 7

7. (a) What is concurrency control transaction ? Explain. 6

   (b) How the recovery is carried out from a system crash ? Explain. 7

OR

8. (a) Explain the following :—

(i) Serializability

(ii) Lock Management. 6

(b) Explain Lock based concurrency control. 7

9. (a) Explain the procedure for installation of My-SQL. 7

(b) Explain the following with suitable example :

(i) Order by clause

(ii) Where clause. 6

OR

10. (a) Explain how to establish a connection by using MySQL in PHP. 7

(b) What is pattern matching ? Explain with example. 6

11. (a) Give the architecture of Hadoop in detail. 6

(b) Explain any four Hadoop commands with example. 8

OR

12. (a) Explain how to setup the Hadoop environment. 7

(b) What is Hadoop streaming ? How streaming works ? Explain. 7

M.Sc. (Part–I) Semester–II (CBCS Scheme) Examination

COMPUTER SOFTWARE (OLD) (Upto Summer–2019)

(Core Java)

Paper–VI

Time : Three Hours] [Maximum Marks : 80

Note :— (1) All questions are compulsory.

(2) All questions carry equal marks.

1. (a) What is control structure ? Write various control structures in Java and explain any one with example. 8

   (b) Explain garbage collection in Java. 4

   (c) Describe this keyword with example. 4

OR

2. (a) Explain constructors in Java with example. 8

   (b) Explain finalize( ) method. 4

   (c) Explain string class with example. 4

3. (a) Define Package. Explain package with example. Also describe access protection mechanism of Java. 8

   (b) Explain the use of final keyword by means of suitable Java program. 8

OR

4. (a) Explain abstract class and object class with example. 8

   (b) What is an Interface ? Explain in detail. 8

5. (a) Describe fundamentals of exception handling. 8

   (b) Explain :

   (i) Multithreading

   (ii) Catch block. 8

OR

6. (a) What is thread priority ? Explain methods used for priority of threads. 8

   (b) What is Thread Synchronizations ? Explain it. 8

7. (a) What is applet ? How is it used in Java Program ? Explain with example. 8

   (b) Write a program in Java to read and display lines of text until you enter the word "stop" using Buffered Reader. 8

OR

8. (a) Describe the different stages in the life cycle of an applet. Distinguish between init( ) and start( ) method. 8

(b) Explain :

(i) Transient and volatile modifiers.

(ii) Applet display method. 8

9. (a) Explain menu bar and menus in Java with example. 8

(b) Explain :

(i) Event Listener Interface.

(ii) Adapter Classes. 8

OR

10. (a) Explain Event delegation model. 8

(b) Explain :

(i) The ActionEvent Class.

(ii) The FocusEvent Class. 8

M.Sc. (Part–I) Semester–II (CBCS Scheme) Examination

COMPUTER SOFTWARE (NEW)

(Distributed Operating System)

Paper–VI

Time : Three Hours] [Maximum Marks : 80

Note :— (1) Illustrate your answers with the help of neat sketches wherever necessary.

(2) Assume suitable data wherever required.

1. (a) Explain the layers, interfaces and protocols in OSI model with suitable diagram. 7

   (b) Describe the asynchronous transfer mode networks in detail. 7

OR

2. (a) Explain RPC with its basic operation. 6

   (b) Explain the following terms :

   (i) Blocking versus non-blocking primitives.

   (ii) Buffered versus unbuffered primitives. 8

3. (a) Explain Berkeley Algorithm for clock synchronization. 7

   (b) How the deadlock occurs in distributed system ? Explain its prevention technique where there is no resource pre-emption. 7

OR

4. (a) What is clock synchronization ? Explain Cristian's Algorithm. 7

   (b) State and explain the mutual exclusion in distributed system. 7

5. (a) Explain the following terms :

   (i) Static scheduling.

   (ii) Dynamic scheduling. 6

   (b) Explain the Bidding Algorithm. 7

OR

6. (a) What is fault tolerance ? Explain its mechanism for distributed system. 6

   (b) What are Threads ? State and explain implementation of threads. 7

7. (a) Explain page based distributed shared memory. 7

   (b) Explain the distributed file system designs. 6

OR

8. (a) What is the difference between page based DSM and object based DSM ? Explain. 7

(b) Explain the following terms :

(i) Linda

(ii) Orea 6

9. (a) Explain the interface and implementation of AMOEBA server. 6

(b) How is the memory managed in AMOEBA ? Explain. 7

OR

10. (a) What is the role of group communication in AMOEBA ? Explain. 7

(b) Explain the working of Boot server. 6

11. (a) Explain the DCE threads. 7

(b) Explain Unix emulation in MACH. 6

OR

12. (a) Describe the communication system for MACH. 7

(b) Explain the scheduling techniques in MACH. 6