| Hall Ticket Number : | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**R-17**

**Code: 7G151**

III B.Tech. I Semester Supplementary Examinations December 2020

# Advanced Java Programming

( Computer Science and Engineering )

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

*********

**UNIT–I**

1. a) Why should one choose JavaFX to develop applications? Discuss about basic concepts and packages in JavaFX. 7M

   b) Define Stage. Explain about Stage with an example. 7M

**OR**

2. a) What is the need of layout managers? Explain different types of layout managers available with JAVAFX. 7M

   b) Mention the list of classes Involved in events processing. Also describe the phases of event handling in JavaFX. 7M

**UNIT–II**

3. a) Differentiate between Toggle Button and Radio Button. Give an example 6M

   b) Explain the following controls with examples (i) ComboBox (ii) CheckBox. 8M

**OR**

4. a) What is the purpose of JavaFX ListView and TreeView? Explain. 7M

   b) Describe about different JavaFX controls (i) Add Images to Menu Items (ii) Context Menu 7M

**UNIT–III**

5. a) How to use JDBC? Explain the types of JDBC drivers 6M

   b) Write a JDBC application to insert, update and retrieve the student information. 8M

**OR**

6. a) Mention the main steps required to access a database and retrieve data from a ResultSet using the JDBC API. 8M

   b) How do you delete a row from table with a specified name match? Explain 6M

**UNIT–IV**

7. a) Differentiate between Generic Servlet and HTTP Servlet with an example. 8M

   b) Define Cookie. Write a program to read/write a cookie ID and Value using servlet technology. 6M

**OR**

8. a) Describe about Session Tracking mechanisms in detail. 7M

   b) How to access databases with JDBC using servlets? Explain 7M

**UNIT–IV**

9. a) Compare and contrast Servlet and JSP with an example. 7M

   b) What is a Java bean in JSP? Explain how to add the Java bean action with suitable example. 7M

**OR**

10. a) What is a JSP custom tag? Discuss custom tag lifecycle methods with a suitable example. 6M

    b) Write short notes on (i) Session Bean (ii) Entity Bean 8M

****

| Hall Ticket Number : | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**R-17**

**Code: 7G152**

III B.Tech. I Semester Supplementary Examinations December 2020

# Compiler Design

( Computer Science and Engineering )

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

*********

## UNIT–I

1. a) What are the various phases of the compiler? Explain each phase in detail for the expression a = b + c * 4 - d 9M

   b) What is input buffering?

   Explain i) Buffer Pairs and ii) Sentinels 5M

**OR**

2. a) Explain the role of parser. Discuss different kinds of errors and error recovery strategies. 7M

   b) Compute FIRST and FOLLOW for the grammar:

   E → T E',
   E' → + T E' / ε,
   T → F T',
   T' → * F T' / ε,
   F → (E) | id 7M

## UNIT–II

3. Construct SLR Parsing table for the grammar

   E → E + T | T,
   T →T * F | F,
   F → (E) | id

   by giving LR(0) items. 14M

**OR**

4. a) Differentiate between LR(1), Canonical-LR and LALR parsing methods. 7M

   b) Show that the following grammar:

   S→ Aa | bAc | Bc,
   A → d,
   B → d
   is LR(1) but not LALR(l). 7M

## UNIT–III

5. a) For the grammar below:

   E → E + T | T
   T → num . num | num
   Give an SDD to determine the type of each term T and expression E. 7M

   b) Explain the procedure for eliminating left recursion from SDTs. 7M

**OR**

6. a) Discuss in detail about type synthesis and type inference 7M

   b) Write about the type checking of overloaded functions and operators? 7M

**UNIT–IV**

7. a) Give Three-Address Code and it's quadruple representation for the assignment: a = b * - c + b * - c ; 7M

   b) What are the different storage allocation strategies? Explain 7M

**OR**

8. a) What are self-organizing lists? How can this be used to organize a symbol table? Explain with an example 7M

   b) Discuss the functions of heap management. 7M

**UNIT–V**

9. a) Suppose 'a' is an array whose elements are 8-byte values, perhaps real numbers. Also assume elements of a are indexed starting at 0. Execute the three-address instruction b = a [ i ] by the machine instructions 7M

   b) Explain the following two classes of local machine independent transformations

   i) Structure preserving transformations

   ii) Algebraic transformations 7M

**OR**

10. a) Generate three-address code for the grammar below: (B is a Boolean expressing and S is a statement)

   S _ if ( B ) S1

   S _ if ( B ) S1 else S2

   S _ while ( S ) S1 7M

   b) Give an example to show how DAG is used for register allocation 7M

***

| Hall Ticket Number : | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**R-17**

**Code: 7G153**

III B.Tech. I Semester Supplementary Examinations December 2020

# Computer Networks

( Computer Science and Engineering )

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

*********

**UNIT–I**

1. a) Explain the differences between OSI model and TCP/IP model. 7M

   b) Compare following networks:

      i. 4G Mobile Phone Network

      ii. RFID

      iii. Sensor Network 7M

**OR**

2. a) Explain the significance of Switching? What are different switching techniques used in computer networks? Discuss. 7M

   b) Write a short note on Guided transmission. 7M

**UNIT–II**

3. a) If transmission delay and propagation delay in a sliding window protocol are 1 msec and 99.5 msec respectively, then-

      i. What should be the sender window size to get the maximum efficiency?

      ii. What is the minimum number of bits required in the sequence number field?

      iii. If only 7 bits are reserved for sequence numbers, then what will be the efficiency? 6M

   b) Explain how hamming code is used to detect and correct one bit error with an example. 8M

**OR**

4. a) What is channel allocation? What are the different schemes to solve the channel allocation problem? Discuss each scheme in details. 7M

   b) Discuss the different properties of CRC. A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is $x^4 + x + 1$. What is the actual bit string transmitted? 7M

**UNIT–III**

5. a) Explain the distance vector routing algorithm in brief. 7M

   b) Explain the Quality of service for Network layer. 7M

**OR**

6. a) With an example explain the Flooding, Hierarchical routing algorithms used in computer networks 7M

   b) Differentiate between IPV4 and IPV6. 7M

**UNIT–IV**

7. a) Discuss about TCP and UDP Protocol 7M

   b) What are the general principles of congestion control? Explain in brief. 7M

**OR**

8. a) Discuss the header format of UDP. 7M

   b) Why TCP need four different timers? Explain the functions of each. 7M

**UNIT–V**

9. a) Draw and explain Domain Name System (DNS) record structure. 7M

   b) Explain the working of electronic mail protocols SMTP, IMAP and POP3 in brief with suitable diagram. 7M

**OR**

10. a) Explain the high-level view of Internet e-mail system and its major components. 7M

    b) Differentiate between iterative and recursive DNS query. Explain each in brief. 7M

****

| Hall Ticket Number : | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**R-17**

**Code: 7G356**

III B.Tech. I Semester Supplementary Examinations December 2020

# Microprocessors and Interfacing

( Computer Science and Engineering )

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

*********

## UNIT–I

1. a) Enlist the addressing modes of 8086 and describe briefly each addressing mode with suitable examples 7M

   b) Draw and explain the each bit of flag register of 8086 family processor. 7M

**OR**

2. a) Explain signal description of 8086 microprocessor. 7M

   b) Describe the instruction set of 8086 microprocessor:

   (i) SHR, (ii) ADD, (iii) DAA, (iv) CMP, (v) CBW, (vi) AAS, (vii)REPE 7M

## UNIT–II

3. a) Draw the interfacing procedure of an 8-bit DAC with 8086 microprocessor. 7M

   b) Write an ALP to rotate the stepper motor 2 times in clock wise and 2 times in anti-clock wise direction using 8255 PPI. 7M

**OR**

4. a) Explain briefly the different modes of operation of 8255 PPI. 7M

   b) Interface two 4Kx8 EPROMs and two 4Kx8 RAM chips with 8086 microprocessors. Select suitable maps. 7M

## UNIT–III

5. a) Explain the functionality of various registers inside 8257 DMA controller. 7M

   b) What is interrupt service routine? Discuss about maskable and non-maskable interrupts in 8086 7M

**OR**

6. a) Demonstrate the cascading mode of 8259A with suitable diagram 7M

   b) Explain the various data transfer schemes. Specify the relative merits and demerits of each schemes. 7M

## UNIT–IV

7. a) Describe the Asynchronous transmission and reception schemes of 8251 in detail 7M

   b) Design a hardware interfacing circuit for interfacing 8251 with 8086. Set the 8251A in asynchronous mode as a transmitter and receiver with even parity enabled, 2 stop bits, 8-bit character length, frequency 160 kHz and baud rate 10 K. Write an ALP to transmit 100 bytes of data string starting at location 2000:5000H 7M

**OR**

8. a) Discuss about the various serial communication standards for data transmission 7M

   b) Design a PIT using 8253 and 8086. Interface 8253 at an address of 0040H for counter 0 and write an assembly language program to generate a square wave of period 1 ms. Assume 8086 and 8253 run at 6MHz and 1.5 MHz respectively. 7M

## UNIT–V

9. a) Discuss about real and protected mode of 80386. 7M

   b) Compare and contrast the salient features of 80286 and 80386 7M

**OR**

10. a) Discuss the register organization of 80286. Show flag register with bit definition. 7M

    b) What are the optimized scheduling strategies adopted in Pentium-pro processor? 7M

*****

| Hall Ticket Number : | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**R-17**

**Code: 7G154**

III B.Tech. I Semester Supplementary Examinations December 2020

# Python Programming

( Computer Science and Engineering )

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 14 = 70 Marks )

*********

**UNIT–I**

1. a) Explain the features of Python programming language in detail. 6M

   b) List and explain the standard data types in Python. 8M

**OR**

2. a) Describe about input statements in Python with examples. 7M

   b) Explain in detail about the if statement and if-else statement with examples. 7M

**UNIT–II**

3. a) Define string. Write the syntax of creating a string with example 6M

   b) What is substring? Write a Python program to display all positions of a substring in a given main string. 8M

**OR**

4. a) Write a Python function to check the given number is prime or not. 7M

   b) Describe various methods to process lists 7M

**UNIT–III**

5. a) What is a class? What is the relation between an object and a class? Write a program which shows how to define a class, how to access member functions and how to create and access objects in Python. 8M

   b) List different types of inheritance and Explain each and every one with suitable examples. 6M

**OR**

6. a) What is abstract class? Explain abstract class method with example. 7M

   b) How to handle exceptions with try-finally? 7M

**UNIT–IV**

7. a) Explain various types of files in python and also what the various file opening modes are. 7M

   b) Describe pickle in python with an example. 7M

**OR**

8. a) Explain sequence characters in regular expressions 6M

   b) Write a python program to create a regular expression that reads email-ids from a text file. 8M

**UNIT–V**

9. a) Describe the way the statements are executed in threads. 6M

   b) Write a python program to create a thread and use it to run a function 8M

**OR**

10. a) Explain about deadlock of threads 6M

    b) Illustrate thread communication using notify() and wait() methods 8M

****