

Code: 7G356

III B.Tech. I Semester Regular Examinations November 2019

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) Explain the concept of segmented memory. What are the advantages? 7M
- b) Write an 8086 ALP to find sum of numbers in the array of 10 elements? 7M

OR

2. a) Draw and explain the read and write cycle timing diagrams of 8086 in maximum mode. 7M
- b) Explain at least 7 assembler directives of 8086 with suitable example. 7M

UNIT-II

3. a) Describe the interfacing of D/A convertor with a neat sketch. 7M
- b) Demonstrate the mode-2 operation used in 8255 PPI in detail 7M

OR

4. a) Describe architecture of 8255 PPI with neat diagram 7M
- b) Differentiate I/O interfacing methods in 8086 microprocessor. 7M

UNIT-III

5. a) Explain hardware and software interrupts in 8086. Demonstrate the interrupt vector table of 8086. 7M
- b) What is the need of DMA? Draw the internal structure of 8257 DMA and explain its operation. 7M

OR

6. a) With neat sketches explain the architecture of 8259A PIC 7M
- b) Explain the various data transfer schemes. Specify the relative merits and demerits of each schemes. 7M

UNIT-IV

7. a) Describe mode instruction control word format in asynchronous and synchronous mode transmission and reception using 8251A 7M
- b) Explain various operating modes of 8253 PIT with suitable diagram. 7M

OR

8. a) Draw the architecture and list out the signal description of 8251A 7M
- b) List out the synchronous and asynchronous data transfer schemes. 7M

UNIT-V

9. a) Discuss the register organisation of 80286 7M
- b) What is paging? Draw the block diagrammatic representation of complete 80386 paging mechanism. 7M

OR

10. Illustrate the salient features of Pentium and Pentium pro processor. 14M

Code: 7G154

III B.Tech. I Semester Regular Examinations November 2019

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 about python features in detail? 7M
- b) Explain the differences between Java and Python 7M

OR

2. a) What is an operator and explain about the arithmetic operators and assignment operators in Python with example. 6M
- b) Write a Python program to retrieve the elements of an array using array index. 8M

UNIT-II

3. a) Mention and explain different string testing methods. 6M
- b) Illustrate the concept of slicing the strings with an example program. 8M

OR

4. a) Write a Python program to calculate factorial of a given number using recursion concept. 8M
- b) Describe various Dictionary methods 6M

UNIT-III

5. a) Defining the following with examples. 8M
 - i. Creating a class
 - ii. Constructor
 - iii. The self variable
- b) List different methods of realizing polymorphism and explain them with example. 6M

OR

6. a) Define abstract class? Write differences between abstract classes and interfaces with examples. 7M
- b) How the exceptions are handled in Python? Explain exception handling mechanism in Python? 7M

UNIT-IV

7. a) Write a python program to copy an image file into another file 7M
- b) Explain the seek() and tell() methods with an example 7M

OR

8. a) Explain regular expressions in python 6M
- b) Write a python program to create a regular expression to retrieve the phone number of a person. 8M

UNIT-V

9. a) Explain the differences between a process and a thread 6M
- b) Write a python program to pass arguments to a function and execute it using a thread. 8M

OR

10. a) Explain about avoiding deadlocks in python program. 7M
- b) Describe about daemon threads with an example. 7M

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R-17

Code: 7G155

III B.Tech. I Semester Regular Examinations November 2019

Software Engineering

(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) Define: 8M
- i. Software ii. Software Engineering
- iii. Software Processes iv. Software Process Model
- b) List and describe the characteristics of a good software 6M

OR

2. a) Explain incremental process model. Justify that it is appropriate for business software but less appropriate for real time systems. 7M
- b) Explain all phases of the Software Development Life Cycle. 7M

UNIT-II

3. a) Explain the requirement management phase of the requirement engineering. 7M
- b) What are different activities involved in requirement engineering. What does “win-win” mean in the context of negotiation during the requirement engineering activity? Explain with an example. 7M

OR

4. a) Draw an activity diagram for an online shopping platform where online customer can browse, or search items, view specific item, add it to shopping cart, view and update shopping cart, do checkout. User can view shopping cart at any time. 7M
- b) What are the activities concerned with analysis modelling? Is it possible to develop an effective analysis model without developing all four elements of analysis model? Explain. 7M

UNIT-III

5. a) Draw and explain about design model in brief 7M
- b) Explain the different categories of architecture styles along with the examples. 7M

OR

6. a) How are the concepts of coupling and software portability related? Provide examples to support your discussion 7M
- b) Explain “An Architecture Trade-Off Analysis Method”. 7M

UNIT-IV

7. a) Perform a detailed task analysis for a banking system. Use either an elaborative or object-oriented approach. 7M
- b) Discuss about interface design steps. 7M

OR

8. a) Perform a detailed task analysis for an internet-based polling booth system. Use either an elaborative or object-oriented approach. 7M
- b) Discuss about various design principles. 7M

UNIT-V

9. a) What is project planning? What are the key elements to consider for effective project planning? 7M
- b) Define the meaning of quality assurance. Explain the role of testing in Quality assurance. 7M

OR

10. a) What are the different activities involved in software maintenance. 7M
- b) Define the meaning of software quality and detail the factors which affects the quality not productivity of a software product? 7M

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Code: 7G151

III B.Tech. I Semester Regular Examinations November 2019

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) What is new in JavaFX? Explain the steps to compile and run a JavaFX application program. 6M
- b) Define Scene Graph. Create a JavaFX application with scene having a Text node. 8M

OR

2. a) What is JavaFX Event Handling? Explain various types of events. 8M
- b) How do you apply effects in JavaFX? Explain with an example. 6M

UNIT-II

3. a) Describe about different JavaFX controls (i) Image and Image View (ii) ListView. 7M
- b) Discuss about effects and transforms in JAVA FX with suitable examples. 7M

OR

4. a) Discuss about different JavaFX controls (i) Adding Tooltips (ii) Disabling a Control 6M
- b) What is the purpose of JavaFX Menus? Give a suitable example. 8M

UNIT-III

5. a) What is the purpose of JDBC? Explain about Java DB API. 7M
- b) Mention the steps to develop a JDBC example to create a student database. 7M

OR

6. a) Explain about different types of JDBC drivers. 6M
- b) Give a suitable example to insert, update and delete values in a database using JDBC. 8M

UNIT-IV

7. a) How do you execute and deploy a servlet program? Mention all the steps. 8M
- b) Differentiate between GET and POST methods. 6M

OR

8. a) Explain the life cycle methods of a servlet. 7M
- b) Develop a program to validate the username/password by using servlet technology. 7M

UNIT-V

9. a) Elaborate in detail about JSP Implicit Objects with suitable examples. 8M
- b) What is Java Bean? Explain about jsp:getProperty and jsp:setProperty. 6M

OR

10. a) Explain page directive? 8M
- b) Define Tag Handler. Describe the JSP Tag API. 6M

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Code: 7G152

III B.Tech. I Semester Regular Examinations November 2019

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) Explain the role of lexical analyzer and their issues 7M
- b) Explain the general format of LEX Program with an example. 7M

OR

2. a) Explain the procedure for eliminating ambiguity and eliminating left recursion from a grammar. Give an example. 7M
- b) For the grammar $E \rightarrow E + E / E * E / id$
Obtain left most and right most derivation for the string $id + id * id$ 7M

UNIT-II

3. a) Consider the grammar

$$E \rightarrow E + T \mid E - T \mid T,$$

$$T \rightarrow T * F \mid T / F \mid F,$$

$$F \rightarrow (E) \mid id$$

Show the sequence of moves made by shift reduce parser for the input string $id1+id2*id3$ is accepted or not. 9M

- b) Explain ways to determine precedence relations between pair of terminals 5M

OR

4. a) Write a short note on error recovery with LR parsers. How it is different from LL-parsers? 7M
- b) Present the algorithm for LALR parsing table construction 7M

UNIT-III

5. a) Below grammar generates binary numbers with a "decimal" point:

$$S \rightarrow L . L \mid L,$$

$$L \rightarrow LB \mid B,$$

$$B \rightarrow 0 \mid 1$$

Design an L-attributed SDD to compute $S.val$, the decimal-number value of an input string. 7M

- b) Explain the procedure for translation scheme to convert infix to postfix 7M

OR

6. a) Write about type inference for polymorphic functions 7M
- b) Explain the details about the specification of a simple type checker 7M

UNIT-IV

7. a) Construct a Quadruple, Triple and Indirect Triple for the statement

$$a+a*(b-c)+(b-c)*d$$
 7M- b) What are the different storage allocation strategies? Explain 7M

OR

8. a) What are the principles associated with designing calling sequences and the layout of activation records? 7M
- b) Explain the process of accessing non local variables information from symbol table in case of nested procedures 7M

UNIT-V

9. a) Discuss the design issues of Code Generator. 7M
- b) Explain in detail about global common sub expression elimination technique. 7M

OR

10. a) With suitable examples, explain about live-variable analysis. 7M
- b) Discuss about copy propagation and dead code elimination. 7M

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Code: 7G153

III B.Tech. I Semester Regular Examinations November 2019

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) Discuss wireless transmission with its advantages and disadvantages. 7M
- b) Compare FDM and TDM. 7M

OR

2. a) Explain in detail about Network Hardware. How network hardware support the 10M communication of two systems. 7M
- b) Describe the Transmission Media. What are the types of Transmission Media? 7M

UNIT-II

3. a) Explain the following error detection techniques 7M
 - i) Checksum ii) Hamming Code
- b) If transmission delay and propagation delay in a sliding window protocol are 1 msec and 49.5 msec respectively, then- 7M
 - 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 6 bits are reserved for sequence numbers, then what will be the efficiency?

OR

4. a) Discuss Framing Techniques in brief. 7M
- b) List and explain different multiple access protocols in brief. 7M

UNIT-III

5. a) Explain the function of Link state routing protocol with an example. 6M
- b) What are the three main functions of network layer? What is routing? Explain shortest path routing in brief. 8M

OR

6. a) Elaborate on multicast routing protocol. 6M
- b) What is Congestion Control? What are the causes of congestion control? Explain token bucket algorithm in brief. 8M

UNIT-IV

7. a) Explain how TCP manages a byte stream. 7M
- b) Define UDP and discuss the different fields format of a used datagram. List out the uses of UDP protocol. 7M

OR

8. a) What are the elements of Transport layer? Discuss each in brief. 7M
- b) Explain congestion avoidance mechanism using random early detection in transport layer with an example. 7M

UNIT-V

9. a) In DNS, can a single host have (i) multiple host names and (ii) Multiple addresses? How the records are organized in such cases? 7M
- b) What is email privacy? Discuss the email security package PGP with its operation. 7M

OR

10. a) Explain the major DNS resource record types and their meaning. 7M
- b) Explain authoritative and non-authoritative DNS. 7M
