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R-15

Code: 5G356

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

Microprocessors and Interfacing

(Common to CSE & IT)

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 the features of 8086 7M
b) Explain how the pipelining is implemented in 8086 7M

OR

2. a) List different instruction groups and mention two examples in each 7M
b) Develop 8086 alp to find the smallest word in a array of 100 words 7M

UNIT-II

3. a) Differentiate SRAM and DRAM 4M
b) Interface two 8Kb ROM and four 16Kb RAM memories to 8086 10M

OR

4. a) Justify latches and buffers used for interfacing 4M
b) Explain the architecture with different modes of 8255 10M

UNIT-III

5. a) How the DMA is faster than others. 4M
b) Sketch and explain how to Interface 8257 with 8086 10M

OR

6. a) Arrange the sequence of actions in 8086 when interrupt occurs. 4M
b) Develop the structure of cascading interrupt connection using 8259 10M

UNIT-IV

7. a) Give the importance of communication interface 4M
b) Explain the architecture of 8251 with neat sketch 10M

OR

8. a) Give the structure how to connect the devices using RS232 4M
b) Summarize the each pin function of RS232 10M

UNIT-V

9. a) Differentiate segmentation and paging 7M
b) Explain the salient features of 80386 7M

OR

10. a) Discuss Salient features of Pentium processors 7M
b) Explain the architectural features of Pentium pro processors 7M

Code: 5G153

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

Operating Systems
(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 inter process communication models along with its strengths and weaknesses.

7M
- b) Define a process and explain various operations on processes.

7M

OR

2. a) Let the five given processes whose arrival time is zero as per the given order and length of the CPU burst time in milliseconds.

Process	Burst Time
P ₁	12
P ₂	10
P ₃	8
P ₄	4
P ₅	11

- Calculate the average waiting time of nonpreemptive SJF scheduling algorithm.

7M
- b) What are the major activities of an Operating System related to file management?

7M

UNIT-II

3. a) Compare Single-threaded and Multi-threaded processes. Write the benefits of multi-threaded programming.

7M
- b) Explain Critical Section problem.

7M

OR

4. a) Write Short notes on a) Processor Affinity ii) Load Balancing

8M
- b) Define a signal and explain signal handling.

6M

UNIT-III

5. a) Explain Resource-Allocation Graph.

7M
- b) Explain any two page replacement algorithms.

7M

OR

6. a) Consider the following snapshot of the system.

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P ₀	1	2	1	2	1	1	1	2	2	5	2	1
P ₁	1	1	0	0	1	8	5	0				
P ₂	2	4	5	4	3	4	5	6				
P ₃	1	6	4	2	1	6	6	2				
P ₄	0	1	1	3	0	7	5	5				

- Answers the following questions using the Bankers algorithm.
- i) Is the system in a safe state? If it is, find the sequence that satisfies safety requirement.
- ii) If a request from a process P₁ arrives (0 3 1 0) can the request be granted immediately? Give detail explanation.

8M
- b) Explain the importance of contiguous memory allocation.

6M

UNIT-IV

7. a) Explain file access methods.

7M
- b) Explain disk structure.

7M

OR

8. a) Explain swap-space management.

6M
- b) Explain disk scheduling.

8M

UNIT-V

9. a) Define Access Matrix and explain its implementation.

7M
- b) Explain Kernel I/O subsystem.

7M

OR

10. a) Explain the classification of security attacks.

7M
- b) Explain capability based systems.

7M

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Code: 5G154

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

Software Engineering

(Computer Science 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 software process frame work? Explain in detail. 7M
b) State and explain software practitioners myths and reality. 7M

OR

2. a) Explain the incremental software process model in detail. 7M
b) What are the core principles of software engineering practice ? 7M

UNIT-II

3. a) Explain in detail about requirements specification. 7M
b) What is scenario based modeling? Describe the steps of scenario based modeling with a suitable example. 7M

OR

4. Write about following Requirements Engineering activities:
i. Inception ii. Elicitation iii. Elaboration
iv. Negotiation v. Specification vi. Validation
vii. Requirements Management 14M

UNIT-III

5. a) Explain Component-Level Design for WebApps. 7M
b) Explain different design Concepts in details. 7M

OR

6. What is an architectural design? How would you assess various alternative architectural designs? 14M

UNIT-IV

7. a) What are the steps involved in user interface design? How is the interface evaluation done? 7M
b) What categories of errors are traceable using Black-Box testing? Explain in detail the following Black-Box testing methods i) Equivalence partitioning ii) Boundary value analysis iii) Orthogonal Array testing 7M

OR

8. a) What are the unit testing considerations? What is the difference between test stub and driver? What are the problems associated with Top-down integration? 7M
b) What are objectives of white-box testing? Explain in detail the following White box testing techniques.
i) Data Flow Testing ii) Branch Testing. 7M

UNIT-V

9. a) What is software quality? Explain in detail
i) McCall's Quality factors ii) ISO 9126 Quality factors. 7M
b) What are activities of software maintenance? 3M
c) What are the basic principles of project scheduling? 4M

OR

- 10 a) What is software configuration management? 7M
b) What are roles, features and contents of SCM repository? 7M

Hall Ticket Number :

R-15**Code: 5G155**

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

Web Technologies

(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. What is HTML table? Explain table element with necessary attributes. Write the HTML code to print following table.

ONE		TWO
THREE	FOUR	SIX
	FIVE	
SEVEN	EIGHT	

14M

OR

2. What are different types of CSS available? Explain with examples.

14M

UNIT-II

3. What is DOM? Explain DOM and SAX using XML processors.

14M

OR

4. a) Explain XML Schema Architecture.

7M

- b) What is XSLT? Describe with an example.

7M

UNIT-III

5. Discuss the following:

i) Driver manager

5M

ii) Database metadata

4M

iii) Querying database

5M

OR

6. a) Develop a JDBC program to retrieve data from the database using the steps involve in the JDBC Program.

7M

- b) Difference between Statement and Prepared Statement?

7M

UNIT-IV

7. a) Describe the lifecycle of servlet.

7M

- b) Explain about handling HTTP request & response.

7M

OR

8. a) Using cookies, discuss session tracking.

7M

- b) Illustrate with example how database is accessed using servlets.

7M

UNIT-V

9. List out the important elements used in Constructing JSP Page use at least one element with suitable program

14M

OR

10. a) In JSP, explain how to display values using expressions to set an attribute?

7M

- b) Discuss error handling and debugging in JSP applications.

7M

Code: 5G151

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

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 various compiler construction tools. 6M
- b) Given a statement $a=b+c*20$. where a, b, c are real. Write the output for every phase of compiler and describe its functionality. 8M

OR

2. a) What is LEX? Explain in detail different sections of LEX Program with a suitable example. 6M
- b) Write short notes on boot strapping with suitable example. 4M
- c) Explain regular grammar and regular expression with examples. 4M

UNIT-II

3. a) State whether the grammar is LL(1) or not.
 $P \rightarrow D;S$ $D \rightarrow D;D/a/$
 $S \rightarrow S;S/b$ 8M
- b) List preprocessing steps for applying predictive parsing. Illustrate with an example 6M

OR

4. a) Construct recursive descent parser for the following grammar.
 $S \rightarrow Ab / Ba$ $A \rightarrow Ba / BB / ab$ $B \rightarrow ab / bb / b$ 10M
- b) Write the procedure to compute FIRST & FOLLOW. 4M

UNIT-III

5. a) Construct SLR parsing table for the given grammar and check whether "*id or id and id*" is a valid string or not.
 $E \rightarrow E \text{ or } T$ $E \rightarrow T$
 $T \rightarrow T \text{ and } F$ $T \rightarrow F$
 $F \rightarrow id$ 10M
- b) Write Syntax Direct Translation for converting infix expression to post fix form. 4M

OR

6. a) Construct the CLR Parsing table for the following grammar
 $S \rightarrow CC$ $C \rightarrow cC/d$ 8M
- b) Discuss briefly about Equivalence of Type Expressions. 6M

UNIT-IV

7. a) Construct various three address code representations of an expression
 $X = -a * b + -a * b$ 6M
- b) Discuss in detail about the Symbol table organization. 8M

OR

8. a) Describe briefly the types of Three address code with suitable example. 6M
- b) Give an overview of various storage allocation strategies. 8M

UNIT-V

9. a) Write an algorithm for partition of blocks and apply it on the below Basic Code.

1. $\text{prod} = 0$

2. $i = 1$

3. $t_1 = 4*i$

4. $t_2 = a[t_1]$

5. $t_3 = t_2*10$

6. $t_4 = \text{prod} + t_3$

7. $\text{prod} = t_4$

8. $t_5 = i+1$

9. $i = t_5$

10. if $i \leq 20$ goto (3).

8M

- b) Explain machine dependent and machine independent optimizations in detail.

6M

OR

10. a) What is a Basic block? With a suitable example explain procedure for identifying basic blocks.

6M

- b) Distinguish local and global optimization.

4M

- c) Write in detail about object code forms.

4M

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R-15

Code: 5G152

III B.Tech. I Semester Regular & Supplementary Examinations November 2018

Computer Networks
(Common to CSE & IT)

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) List two ways in which the OSI references model and the TCP/IP reference model are the same. Also list two ways in which they differ. Discuss the layered architecture of TCP/IP reference model. 10M
- b) If a binary signal is sent over a 3-kHz channel whose signal to noise ratio is 20 dB, what is the maximum achievable data rate? 4M

OR

2. a) What are two reasons for using layered protocols? What is one possible disadvantages of using layered protocols? 7M
- b) Make a comparison between the fiber optics and copper wire. 7M

UNIT-II

3. a) An 8 bit byte with binary value 10101111 is to be encoded using an even parity hamming code. What is the binary value after encoding? 5M
- b) Explain about pure ALOHA and slotted ALOHA 9M

OR

4. a) With the help of neat diagram, explain the architecture of classical Ethernet. 7M
- b) In the binary countdown protocol, explain how a lower numbered station may be starved from sending a packet. 7M

UNIT-III

5. a) Describe the major differences between the ECN method and the RED method of congestive avoidance. 5M
- b) Explain in detail about the Link State Routing Algorithm with an example. 9M

OR

6. a) What is a Routing protocol? List and explain the principles of routing 9M
- b) Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation. 5M

UNIT-IV

7. Explain the following transport layer protocols. 14M
 - a) Simple protocol
 - b) Stop and wait protocol
 - c) Go-Back-N protocol
 - d) Selective Repeat Protocol

OR

8. a) Draw TCP header format. Write the significance of the components in TCP header format 9M
- b) Discuss the advantages and disadvantages of Delay Tolerant Networks. 5M

UNIT-V

9. a) Can a computer have two DNS names that fall in different top level domains? If so give a plausible example. If not explain why not. 9M
- b) Compare and contrast JPEG and MPEG standard. 5M

OR

10. Write a short notes on the following: 14M
 - a) Web Proxies
 - b) Server Farms
 - c) SIP
