Jatiya Kabi Kazi Nazrul Islam University

Dept. of Computer Science and Engineering

3rd Year 1st Semester Final Examination-13, Session: 2017-2018

Course: CSE-307 (Internet and Web Programming)

Time: 3 (Three) Hours **Full Marks: 5 × 12 = 60**

[Answer any 5 (five) of the following questions. You have to write the answers sequentially e.g., a) then b) then c) and so on.]

1	(a)	Define the terms Internet, web programming, FTP, and Telnet.	2+2
	(b)	What is web technology? "Web technology is a blessing in the modern world"- explain.	3
	(c)	Define addressing? Write the general format of URL and explain every part briefly.	2+3
2	(a)	What is HTTP? "HTTP is called s stateless protocol" - explain.	1+2
	(b)	What is router? Draw a figure where data transmission occurs using a router and explain.	1+3
	(c)	Define domain and sub-domain with at least two examples for each.	3
	(d)	What select box in HTML? Write an example to draw a select box for inserting five department names from your university.	2
3	(a)	Why does HTML call markup language? Explain with example.	2
	(b)	Describe CSS box model along with a diagram. Give an example DHTML program.	4
	(c)	Discuss different types of attribute used in HTML form Tag with example.	3
	(d)	Write a DHTML program using at least five block-level elements	3
4	(a)	In reference to socket programming, explain each of the following functions: i. Listen ii. Accept iii. Connect	6
	(b)	Explain the difference between client server and peer to peer architectures.	3
	(c)	What is the meaning of DNS? Explain how domain names are resolved on the Internet.	3
5	(a)	"PHP is one of the popular web programming language"- Explain.	2
	(b)	Design a DHTML form to insert teachers' profile of your department with client-end validation.	4
	(c)	Write the difference between following: (i) include() and require() (ii) mysqli_fetch_array() and mysqli_fetch_assoc()	2
	(d)	How can you upload a PDF file using DHML form? Write a complete PHP program to upload the file.	4

6. (a) What will the following JavaScript code print? 6

```
var cars = ["BMW","Volvo","Saab","Ford"];
var i=0;var text="";
for(;cars[i];){
  if(i%2!=0)
    text+=cars[i] + "<br>";
  i++;
}
document.write(text);
```

(b) What will the following JavaScript code print? 6

```
var str ="123456789";
var patt1=/[^1-4]/g;
var result=str.match(patt1);
document.write(result);
```

7. (a) What do you know about scripting languages? What are the differences between JavaScript and VBScript? 1+2

(b) What is JavaScript? Are Java and JavaScript the same? Explain the reason of your answer. 1+2

(c) Where you can write JavaScript code in an HTML page? Give example of each method. 2

(d) What is client-side validation? Give an example program DHTML to validate a form with 5 fields using JavaScript? 1+3

8. (a) What do you know about MySQL server? Why does it necessary in accessing database? 2

(b) What is "Alert Box" in JavaScript? Write an example DHTML program to generate the message "you have click on wrong button" 3

(c) Write the output of following code: 3

```
<?php
echo "Today is ". date("Y/m/d"). "<br>";
echo "The time is ". date("h:i:sa"). "<br>";
echo "Today is ". date("l");
?>
```

(d) How could you access all data from 'student' table of a database named 'admission' with using PHP and MySQL. 4

Table: Student

Roll	Name	Year	Session	Department
11	X	1	2016-2017	CSE
12	Y	2	2017-2018	EEE
13	Z	3	2018-2019	STAT

Write the PHP code to print all data in a tabular format.

Jatiya Kabi Kazi Nazrul Islam University
Dept. of Computer Science and Engineering
B.Sc. (Engg.) 3rd Year 1st Semester Final Examination-2020
Session: 2017-2018
Course: CSE-301 (Microprocessors)

Time: 3 (Three) Hours **Full Marks: 5 × 12 = 60**

[Answer any 5 (five) of the following questions. You have to write the answers sequentially e.g., a) then b) then c) and so on.]

1. a) Define microprocessor and microcomputer with examples. 2
   b) What do you mean by machine language and assembly language programming? Give examples. 2
   c) Differentiate among assembler, compiler, and interpreter. 3
   d) Draw and briefly explain the internal architecture of Intel 8085 microprocessor. 5

2. a) What do you mean by instruction set? Write the features of RISC. 4
   b) With examples write the characteristics of fourth and fifth generation microprocessor. 4
   c) Why should you learn Assembly Language? How is ASM different from a "high-level" language? 4

3. a) What are instruction format? With example explain different types of instruction format. 5
   b) Find out the addressing modes of the following instructions: 3
      i) MOV AL, 35H
      ii) LDAX B
      iii) MOV AX, [BX]
      iv) MOV AX,CX
      v) ADD R1, 4000
      vi) ADD AX, [BX+SI]
   c) With example explain arithmetic and logic instruction. 4

4. a) How these registers are different: AL, AX and AH? 3
   b) Write an assembly language program to add the two numbers 0004H and 0008H stored in BX and CX register respectively and store the result into another register. 3
   c) List the applications of microprocessors and microcontrollers. 3
   d) Compare between 8085 and 8086 microprocessors. 3

5. a) What is interrupt? Describe different type of interrupts used in 8085 microprocessor. 7
   b) What types of instruction sets are used in 8085? Describe. 5

6. a) Draw the register structure of 8086 microprocessor and write the functions of it general purpose registers. 6
   b) What are the functions of special purpose FLAGS register of 8086 microprocessor? 6

7. a) What are the functions of execution unit of 8086 microprocessor? 4
   b) What is addressing modes? What types of addressing modes are available in 8086 microprocessor? 4
   c) With example register indirect addressing mode of 8086 microprocessor. 4

8. a) Write short notes on (any two) 12
      i) 80286 microprocessor
      ii) 80486 microprocessor
      iii) Pentium microprocessor

Jatiya Kabi Kazi Nazrul Islam University

Department of computer Science and Engineering

B.Sc. (Engg.) 3rd year 1st semester Final Examination 2020, Session 2017-2018

Total Marks: 60 **Course: CSE-303 (Operating System)** **Time: 3 hours**

[Answer any 5 (five) from the following questions. You have to answer all the sub-sections of a question sequentially, e.g., first (a), then (b), then (c) and so on.]

1. a) Define operating system. Describe the three main purposes of an operating system? 6
   b) What is process control block (PCB) of a process? Explain the information that are maintained by the PCB. 6

2. a) What do you mean by I/O operation? 2
   b) How does I/O bound process differ from CPU bound? 2
   c) Briefly discuss storage device hierarchy in a computer system. 4
   d) Describe various process states in short. 4

3. a) Define dispatcher. 2
   b) Explain the difference between preemptive and non-preemptive scheduling. 4
   c) Suppose that the following processes arrive for execution at the times indicated. Each process will run for the amount of time listed. In answering the questions, use preemptive scheduling, and base all decisions on the information you have at the time the decision must be made. 6

Process	*Arrival Time*	*Burst Time*
P_1	5	8
P_2	1	4
P_3	3	1
P_4	2	9
P_5	0	3

   (i) What is the average turnaround time and average waiting time for these processes with the FCFS scheduling algorithm?
   (ii) What is the average turnaround time and average waiting time for these processes with the SJF scheduling algorithm?
   (iii) What is the average turnaround time and average waiting time for these processes with the **RR** scheduling algorithm when quantum time is 2 ?

4. a) Discuss the options for breaking a deadlock. 4
   b) What is segmentation? Briefly explain segmentation hardware. 4
   c) Briefly discuss different levels of RAID. 4

5. a) What is semaphore? Is deadlock occurs when using semaphore? Explain your answer. 6
   b) What is readers-writers problem? Describe the solution of readers-writers problems using semaphore. 6

6. a) A system has 2 processes and 3 identical resources. Each process needs a maximum of two resources. Is deadlock possible? Explain your answer. 6
   b) Calculate the physical memory address in multi-partition memory allocation if base register is 0x235F and limit register is 2000 for the following program address: 100, 200, 2002, 300, 324, 400, 5000, 6234, 700, 933 6

7. a) Differentiate between a process and a thread. 2
   b) Write an algorithm that detects deadlock for several instance of a resource type. 6
   Consider a system with five process and three resource types A, B and C, given below. Find out this system is or not in a deadlock state and why. Also find state sequence (if have).

	Allocation	*Request*	*Available*
	A B C	*A B C*	*A B C*
P_0	0 1 0	0 0 0	0 0 0
P_1	2 0 0	2 0 2	
P_2	3 0 3	0 0 0	
P_3	2 1 1	1 0 0	
P_4	0 0 2	0 0 2	

   c) What is paging? Explain the procedure for hardware address protection with base and limit registers. 4

8. a) What is system calls? What is the purpose of system calls? 4
   b) Differentiate between RMI and RPC. 4
   c) What is race condition? 2
   d) Explain the difference between busy waiting and blocking. 2

***

Course Instructor's
Dr. Md. Selim Al Mamun

Jatiya Kabi Kazi Nazrul Islam University

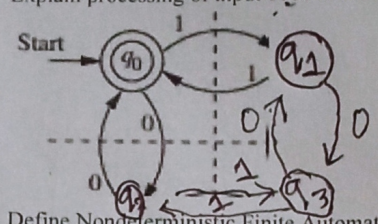
Department of computer Science and Engineering
B.Sc. (Engg.) 3rd year 1st semester Final Examination 2020, Session 2017-2018
Course: CSE-305 (Theory of Computation)

Total Marks: 60 **Time: 3 hours**

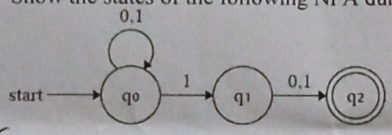
[Answer any 5 (five) from the following questions. You have to answer all the sub-sections of a question sequentially, e.g., first (a), then (b), then (c) and so on.]

1. a) Define automata. Why should you study automata? 3
   b) Explain symbol, alphabet and string with examples. 6
   c) Consider sets of binary strings A = {0, 00, 000} and B = {11}. Show the language denoted by each of the following: 3
   (i) A^0 and B^0 (ii) A^* (iii) AB

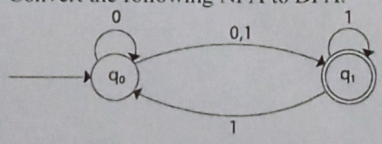
2. a) Define Deterministic finite automaton (DFA). 4
   b) Design a DFA over an alphabet $\sum = \{0, 1\}$ accepting the following language: 4
   i) the set of all strings ending in **00**.
   ii) the set of all strings with **011** as substring.
   c) Explain processing of input 110101 for the following DFA using extended transition function. 4



3. a) Define Nondeterministic Finite Automata (NFA). 2
   b) Design an NFA that accepts all strings ending with 01 over an alphabet $\sum = \{0, 1\}$. Show both transition diagram and table. 4
   c) Show the states of the following NFA during the processing of input sequence **01010**. 6



4. a) "Every DFA is also an NFA" - explain. 2
   b) Convert the following NFA to DFA. 6



   c) Explain ε -NFA with examples. 4

5. a) Illustrate Chomsky Hierarchy in ToC. 4
   b) Regular Expressions (RA) are used to denote regular languages. What are the conditions to be an expression is regular? 4
   c) Write the closure properties of regular languages. 4

6. a) What is pumping lemma? Why is it used? 4
   b) Write regular expression for an email address. 3
   c) How to remove ambiguity in CFG? Explain with example. 5

7. a) What is Context Free Grammar (CFG)? 3
   b) Generate a CFG for a palindrome. 3
   c) Given the grammar G = (*T*, *V*, *S*, *P*), where 6

$T = \{+, *, (,), a, b, 0, 1\}$
$V = \{E, I\}$
$S = E$
$P = \{E \rightarrow I \mid E + E \mid E * E \mid (E),$
$I \rightarrow a \mid b \mid Ia \mid Ib \mid I0 \mid I1\}$

Show the leftmost and rightmost derivations of the string $a * (a + b00)$.

8. a) Write and explain the algorithm for minimization of a DFA. 5
   b) Does a pushdown automaton (PDA) have memory? Justify your answer. 3
   c) Construct a PDA for the language $\mathbf{a^n b^m a^{n+m}}$. 4

***