Rangamati Science and Technology University
Department of Computer Science and Engineering

3rd Year 1st Semester B.Sc. (Engg.) Midterm-2, 2022

Session: 2019-2020

Course Title: Computer Peripheral Device and Interfacing **Course Code:CSE 3101**

Time: 1 hr **Full Marks: 15**

[Answer all the questions. Figures in the right-hand margin indicate full marks.]

1. Define Interrupt and explain its basic concept. Describe the Intel dedicated interrupts briefly. 4

2. Differentiate between Block Data Transfer and Direct Memory Access. Which one is more preferable; Explain in your own way. 3.5

3. Illustrate the sequence of Handshaking with proper definition. 4

4. Differentiate between synchronous and asynchronous data transmission. 3.5

Rangamati Science and Technology University

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3rd Year 1st Semester, Mid Term-02 B.Sc. Examination-2022

Course Title: Operating Systems Course Code: CSE-3103

Time: 1 Hour Marks: 15

[Answer the following questions. Figures in the right-hand margin indicate full marks.]

1) C. Write a Difference between GUI & CLI of operating system. 3

D. What is system program? Describe the mechanism of the system programs for program development and execution. 3

2) Describe the various ways of structuring an operating system with example. 4

3) Write a short note on following topic: (2.5*2) =5

ii. **Process Control Block**

ii. **Shared memory process of Interprocess communication (IPC)**

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Department of Computer Science and Engineering

3rd Year 1st Semester BSc(Engg.) 2nd Mid Term Examination-2022

Session: 2019-2020

Course Title: Theory of Computation; Course Code: CSE 3105

Time : 1Hour Total Marks-15

[Figures in the right-hand margin indicate full marks.]

1. Convert the following non-deterministic finite automata to equivalent deterministic finite automata. 3

2. Define Chomsky Normal Form. Construct Chomsky Normal Form for the following CFG. 5

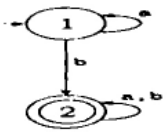
$$S \rightarrow ASA \mid aB$$
$$A \rightarrow B \mid S$$
$$B \rightarrow b \mid \varepsilon$$

3. Consider a grammar $G_4 = (V, \sum, R, \langle EXPR \rangle)$. 4
V is {⟨EXPR⟩, ⟨TERM⟩, ⟨FACTOR⟩}and $\sum = \{a, +, \times, (,)\}$. The rules are:

$$\langle EXPR \rangle \rightarrow \langle EXPR \rangle + \langle TERM \rangle \mid \langle TERM \rangle$$
$$\langle TERM \rangle \rightarrow \langle TERM \rangle \times \langle FACTOR \rangle \mid \langle FACTOR \rangle$$
$$\langle FACTOR \rangle \rightarrow (\langle EXPR \rangle) \mid a$$

Draw the parse trees for the strings $a + a \times a$ and $(a + a) \times a$.

4. Convert the following finite automata to regular expressions. 3



Rangamati Science and Technology University

Department of Computer Science and Engineering

3rd Year 1st Semester B.Sc. (Engg.) Mid-2 Exam 2022

Course Code: CSE-3107; **Course Title:** Compiler Designing

Time: 1 Hour **Marks:** 20

1. (a) Define token, pattern with example. **2**

(b) Give two examples of Context-Free Language and explain it. **3**

2. (a) What is ambiguity in CFG? **1**

(b) Consider the following grammar **G** which is ambiguous. Show that the string **S: aabbccdd** has two parse tree and two leftmost derivations. **4**

G: **S → AB | C**
A → aAb | ab
B → cBd | cd
C → aCd | aDd
D → bDc | bc

3. (a) What is Context Free Grammar? Shortly brief the touples of CFR. **2**

(b) Consider the following grammar: **3**

$S \rightarrow ABCDE$
$A \rightarrow a \mid \varepsilon$
$B \rightarrow b \mid \varepsilon$
$C \rightarrow c$
$D \rightarrow d \mid \varepsilon$
$E \rightarrow e \mid \varepsilon$

Find out the of all terminal, non-terminals and start variables.

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B.Sc(Hons.) 3rd Year 1st Semester Mid-Term 2 Examination 2022

Course Title: Sociology and Ethics and Legal Aspects of Information

Course code: Sco-3109

Full Marks: 15 Time: 1 Hour

[Answer any three questions. All questions are of equal value]

1. Elaborate the concept of society. 5
2. What do know about the contributions of Max Weber to sociology? 5
3. What is social structure and what are its components? 5
4. Review Karl Marx's concept of basic structure and superstructure. 5