



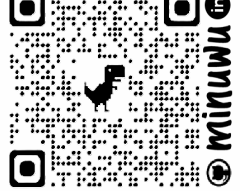
Rangamati Science and Technology University
Department of Computer Science and Engineering
2nd Year 2nd Semester B.Sc. (Engg.) Midterm-II (2021)
Course Code: CSE-2201; Session: 2019-20
Course Title: Database Management System

Time: 1 Hour

Marks: 15

- NB:**
- 1. Answer all questions.**
 2. Figures in the right margin indicate marks.
 3. All parts of a question must be answered serially.

- 1 (a) Define Entity Set. Describe the cardinality constraints of E-R diagram with example. 5
- (b) Define weak entity set. Give an example of it. 2
- (c) Draw an E-R diagram for an University Enterprise. 8



Rangamati Science and Technology University
Department of Computer Science and Engineering
2nd Year 2nd Semester B.Sc. (Engg.) Midterm-II (2021)
Course Code: CSE-2203; Session: 2019-20
Course Title: Computer Architecture and Organization

Time: 1 Hour

Marks: 15

- NB:**
- 1. Answer all questions.**
 - 2. Figures in the right margin indicate marks.**
 - 3. All parts of a question must be answered serially.**

- (a) Describe instruction cycle state diagram with interrupts.** **8**

(b) Draw Top-level view of computer organization. Explain each component briefly. **4+3**

Rangamati Science and Technology University

2nd Year 2nd Semester Mid Term -02 Examination-2021 Session – 2019-2020

Department of Computer Science and Engineering

Course Title: Design and Analysis of Algorithm

Course Code: CSE-2204

Time: 1 Hour

Marks: 15

1. (a) Determine the efficiency of divide and conquer algorithms. 2
- (b) Write the worst-case complexities of the following algorithm: 3
 - i. Quick Sort
 - ii. Merge Sort
 - iii. Bubble Sort
- (c) Explain how the merge sort can be viewed as a recursive application of the Divide and conquer methodology. Trace its application to the following data sets 9,4,3,8,6,2,1,5,7. 3
2. (a) Compare greedy method and dynamic programming. Show the general procedure of dynamic programming. 2
- (b) What do you mean by heap? Sort the following array, $A = \langle 4, 1, 3, 2, 16, 9, 10, 14, 8, 7 \rangle$ using heap sort. 3
- (c) Find the adjacency list and matrix for the following graph G. 2

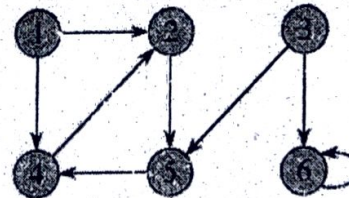


Figure – Graph G.



@Minhas

1 2 3 4 5 6 7 8 9 10 11 12



Rangamati Science and Technology University

Department of Computer Science and Engineering

2nd Year 2nd Semester B.Sc. (Engg.) 2nd Midterm Exam- 2021

Course Title: Microprocessor and Assembly Languages, Course Code: CSE-2206

Session: 2019-2020

Time: 1 hour

Full Marks: 15

1. Draw the programming model of Intel 8086 microprocessor. 4
2. Briefly discuss about the operation of position registers and index registers. 3
3. Write down the purpose of general purpose registers. 5
4. Discuss the following topics - 3
 - i. program visible register
 - ii. program invisible register
 - iii. Special purpose registers



Time: 1 Hour

@Minha

Full Marks: 15

[N.B. Answer any 3(Three) questions. All questions are of equal value.]

1. a) Define the following term with examples 3
 (i) Random Variable; (ii) Probability function; (iii) Probability density function; (iv) Mathematical Expectation. 2
 b) Write down the properties of mathematical expectation. 2

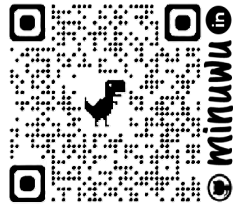
2. A random variable has the following probability function

Values of X: x	-2	-1	0	1	2	3
P(x)	0.1	k	0.2	2k	0.3	0.1

 (a) (i) Find the value of k; (ii) $P[X > 1]$; (iii) $P[-1 < X < 2]$; (iv) $P[X < 1]$; (v) $P[1 \leq X < 3]$. 3
 (b) Calculate the mean, variance, standard deviation, and coefficient of variation of random variable X. 2

3. a) Define Binomial distribution. Write down the properties of a binomial distribution. 2
 b) The probability that a patient recovers from a rare blood disease is 0.4. If 15 people are known to have contracted this disease, what is the probability that (i) at least 10 survive; (ii) from 3 to 8 survive, and (iii) exactly 5 survive? 3

4. a) Distinguish between population and sample. 1.5
 b) These data represent the record high temperatures in degrees Fahrenheit ($^{\circ}\text{F}$) for each of the 50 states. 3.5
 112, 100, 127, 120, 134, 118, 105, 110, 109, 112, 110, 118, 117, 116, 118,
 122, 114, 114, 105, 109, 107, 112, 114, 115, 118, 117, 118, 122, 106, 110,
 116, 108, 110, 121, 113, 120, 119, 111, 104, 111, 120, 113, 120, 117, 105,
 110, 118, 112, 114, 114.
 (i) Construct a grouped frequency distribution for the data using



suitable classes.

- (ii) Also calculate relative frequency, percent of frequency, and cumulative frequency from the constructed frequency distribution.
- (iii) Draw a conclusion of the frequency distribution table.

~~~~~Good Luck~~~~~