UNIVERSITY OF ENGINEERING & TECHNOLOGY

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

MIDSEMESTER EXAMINATION OF 2ND SEMESTER 1ST YEAR (3RD SEMESTER), OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2019.

COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE

DATED 10-02-2020 **TIME ALLOWED 90 MINUTES** **MAX. MARKS 20**

Student Name : _____ **Student Id Number :** _____

Instructions:

1. This paper contains **04** questions.
2. Use of Calculator is _____ (allowed / not allowed)
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9. The Answer Script must be returned back to invigilator before leaving exam hall.

NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q.NO. 1 Draw a schematic diagram of IAS structure. Explain each component of the structure.

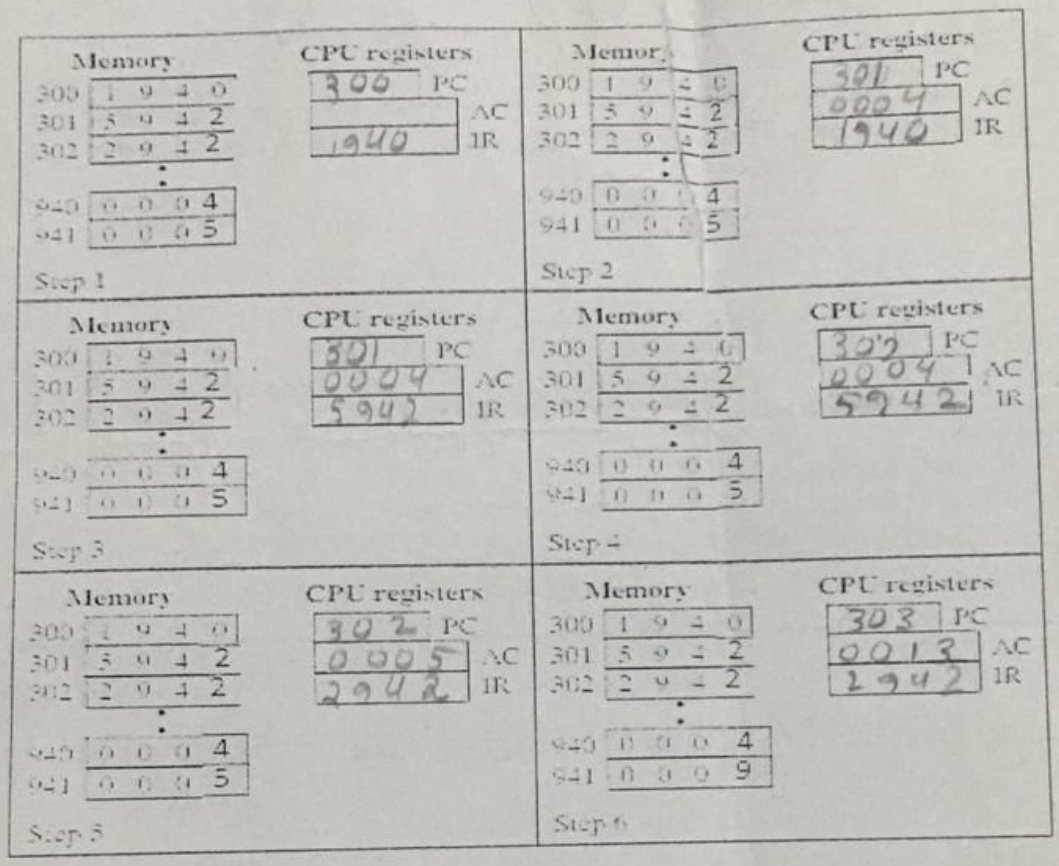
Q.NO. 2 Explain the following

- IBM 7094 computer
- Amdahl's Law
- Interrupt
- Evolution of Intel Architecture

Q.NO. 3 Evaluate the below given table and analyze the performance of all processors. Compare them in terms of given parameters and evaluate which should perform better and why

	P 1	P 2	P 3	P 4
Introduced	1999	2000	2006	2013
Clock speeds	450–660 MHz	1.3–1.8 GHz	1.06–1.2 GHz	4 GHz
Bus width	32 bits	64 bits	32 bits	16 bits
Number of transistors	9.5 million	42 million	67 million	1.86 billion
Feature size (nm)	250	180	65	22
Addressable memory	64 GB	64 GB	64 GB	64 GB
Virtual memory	64 TB	64 TB	64 TB	64 TB
Cache	512 kB L2	256 kB L2	2 MB L2	1.5 MB L2/15 MB L3
Number of cores	3	2	4	6

Q.NO. 4 Below diagram shows the execution process for Von Neuman architecture. Complete the whole process for addition of two numbers by filling the empty blocks in the diagram for memory and registers.



THE END

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DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

FINAL EXAMINATION OF 1ST SEMESTER 2ND YEAR (3RD SEMESTER) OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE (THEORY)

DATED 18-09-2020 **TIME ALLOWED 03 HOURS** **MAX. MARKS 60**

Student Name : _____ **Student Id Number :** _____

Instructions:

1. This paper contains 05 questions
2. Use of Calculator is _____ (allowed / not allowed)
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q.NO. 1 Explain the role of QPI and PCI on a multicore computer

Q.NO. 2 Elaborate the structure of Cache/man memory system (Hint: internal structure of cache and main memory. How data is stored in mentioned memory). Why levels of Cache memory are used in computer systems

Q.NO. 3 Elaborate the multiple disk database design RAID and compare/differentiate different levels of RAID.

Q.NO. 4 What are different components of computer system. Explain Von Newman Architecture.

Q.NO. 5 Define the following

- Clock Speed
- Instruction Execution Rate
- Amdahl's Law
- SSD vs HDD

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

FINAL EXAMINATION OF 1ST SEMESTER 2ND YEAR (3RD SEMESTER) OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

DIGITAL LOGIC DESIGN (THEORY)

DATED 23-09-2020 **TIME ALLOWED 03 HOURS** **MAX. MARKS 60**

Student Name : _____ **Student Id Number :** 19-BSCS-07

Instructions:

1. This paper contains 05 questions.
2. Use of Calculator is _____ (allowed / not allowed)
3. Cheating of any type will disqualify the candidate.
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6. The work must be neat & clean.
7. Exchange / Borrow of Calculator or Stationary is not allowed.
8. Mobile Phones must be powered off and submitted at the given counters during the exam.
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q.NO. 1 Design Seven Segment Display & Draw logical of Alphabet "a" & "g".

Q.NO. 2 Design Full adder with the help of Truth Table.

Q.NO. 3 Design BCD Priority Encoder W.r.t Truth Table Encode 4& 8 number.

Q.NO. 4 (a) Convert D Flip Flop into T Flip Flop $T = Q\bar{P}$ $Q\bar{T} + Q\bar{T}$ (9) $J + Q\bar{K}$

(b) Simplify the Characters Equation of JK Flip Flop

Q.NO. 5 Design logical diagram of Mux & DMux and Draw connection Diagram of Mux to DMux.

THE END

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MIDSEMESTER EXAMINATION OF 2ND SEMESTER 1ST YEAR (3RD SEMESTER), OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

DIGITAL LOGIC DESIGN (THEORY)

DATED 11-02-2020 **TIME ALLOWED 90 MINUTES** **MAX. MARKS 20**

Student Name : Amna Zafar **Student Id Number :** 19-BSCS-07

Instructions:

1. This paper contains 04 questions.
2. Use of Calculator is _____ (allowed / not allowed)
3. Cheating of any type will disqualify the candidate.
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7. Exchange / Borrow of Calculator or Stationary is not allowed.
8. Mobile Phones must be powered off and submitted at the given counters during the exam.
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q.NO. 1 Use K.MAP to simplify of the following logic Expression and draw ~~logical diagram~~ of Given equation.

i) $F = \overline{A\bar{B}C + A\bar{B}\bar{D} + BCD + B\bar{C}}$ $\bar{A}C\bar{D} + \bar{A}B + \bar{A}BC$

ii) $F = \overline{W(\bar{x}+y)\bar{z} + x(\bar{y}+z)}$ $\bar{W}\bar{x} + \bar{W}y\bar{z} + W\bar{x}z$

Q.NO. 2 Solve the following logic expression use Boolean Algebra and DE Morgan Theorem.

i) $\overline{\bar{C}+B+\bar{A}} + \overline{\bar{C}+\bar{B}+A} + \overline{\bar{C}+\bar{B}+\bar{A}}$ $A\bar{B}C + \bar{B}C$

ii) $WXY(W\bar{X} + W\bar{Y}) + W\bar{X}Y(\bar{W}\bar{X} + X\bar{Y})$ $W\bar{X}Y$

Q.NO. 3 Draw I.C Connection diagram of following expression.

$\overline{\overline{A[B(\bar{C}D)]}}\,(A\bar{B}\bar{C})\;\overline{\overline{B+\bar{D}(A\bar{B}C)}}$

Q.NO. 4 (a) Define TTL IC and CMOS I.C.

(b) Design Full Adder with the help Truth Table.

THE END

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FINAL SEMESTER EXAMINATION OF 1ST SEMESTER 2ND YEAR (3RD SEMESTER) OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

DATA STRUCTURE & ALGORITHM (THEORY)

DATED 16-09-2020 TIME ALLOWED 03 HOURS MAX. MARKS 60

Student Name : _____ Student Id Number : _____

Instructions:

1. This paper contains 05 questions.
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9. The Answer Script must be returned back to invigilator before leaving exam hall.

NOTE: - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Que # 01 (Level-I, CLO-1)

a) **List** the characteristics of an Algorithm 02
b) **What** is Top down approach? 02
c) **What** are the expectations from an algorithm? 02
d) **Define** "Divide & Conquer" strategy 02
e) **Define** the term Graph and Tree 02
f) **What** do you understand by the term Complexity of an Algorithm? 02

Que # 02 (Level-II, CLO-2)

a) **Design** a string manipulation algorithm for duplicating a given character string N times 03
b) **Interpret** the statement, element that has been in the list for the shortest time is processed first. 04
c) **Explain** Insertion and Deletion Operation is easy in link list, having (log n) 03

Que # 03 (Level-II, CLO-2)

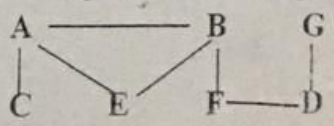
a) **Design** an algorithm that finds the given string is palindrome or not? 03
b) **Illustrate** AVL is better choice than Hashing (Example) 04
c) **Explain** Open and Close Addressing of Hashing 03

Que # 04 (Level-III, CLO-2)

a) **Solve** for the Postfix notation by showing all steps of Symbols, Stack and Expressions 05

$$X = A \times (B + C) \times D$$

b) **Apply** DFS & BFS on the following undirected Graph (start from vertex B) 04



c) **Apply** the recursion on the following

$$Q(a,b) = \begin{cases} 0 & \text{if } a < b \\ Q(a-b,b) + 1 & \text{if } b <= a \end{cases}$$

, If a = 14, b = 3

Que # 05 (Level-III, CLO-2)

a) **Build** Valid Heap on the following sequence (show steps)

55, 70, 50, 30, 80, 25, 35, 15, 85, 65

b) **Construct** Binary Search Tree (BST) on the following sequence

55, 70, 50, 30, 80, 25, 35, 15, 85, 65 , Also redraw tree after deleting node 70

c) **Organize** the given keys in Open Hashing,

40, 8, 35, 25, 15, 37, 10, 19, 39, 27

(Hash Function: **Key % N**, where N = (add roll # digits + 5)

12

THE END

40 % 12 = 4

8 % 12 = 8

35 % 12 = 11

25 % 12 = 1

15 % 12 = 3

37 % 12 = 1

10 % 12 = 10

19 % 12 = 7

39 % 12 = 3

27 % 12 = 3

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

MIDSEMESTER EXAMINATION OF 2ND SEMESTER 1ST YEAR (3RD SEMESTER), OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

DATA STRUCTURES & ALGORITHMS (THEORY)

DATED 12-02-2020 **TIME ALLOWED 90 MINUTES** **MAX. MARKS 20**

Student Name : Amna Zafar **Student Id Number :** 19-BSCS-07

Instructions:

1. This paper contains **04** questions.
2. Use of Calculator is _____ (allowed / not allowed)
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Que # 01 (Level-I, CLO-1)

a) **Why** Data organization is important? 02

b) **What** you understand by the term Abstract Data Types 02

d) **Define** algorithm and what is its domain? 02

e) **Define** linear and nonlinear data structures? 02

f) **How** you define term Data Structure, also write its basic operations 02

Que # 02 (Level-I, CLO-1)

a) **Make** an algorithm that finds frequency of a particular character in a string 02

b) **Explain** Recursion and its characteristics with any suitable example 02

Que # 03 (Level-II, CLO-2)

a) **Explain** Complexity of an algorithm and its cases with suitable examples 03

Que # 04 (Level-III, CLO-2)

a) **Apply** Binary Search Algo to find the **ITEM 18** in the list of even numbers from **10** to **34** 03

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FINAL SEMESTER EXAMINATION OF 1ST SEMESTER 2ND YEAR (3RD SEMESTER) OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

FUNDAMENTALS OF MANAGEMENT (THEORY)

DATED 14-09-2020 TIME ALLOWED 03 HOURS MAX. MARKS 60

Student Name : Amna Zafar Student Id Number : 19-BSCS-07

Instructions:

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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q.NO. 1 What types of planning do you do in your personal life? Describe these plans in terms of being
a) Strategic or operational b) Short term and long term
c) Specific or directional.

Q.NO. 2 Which type of communication do you think is most effective in a work setting? Why?

Q.NO. 3 Discuss the traditional and contemporary views of each of the six elements of organization design?

Q.NO. 4 Describe the key components of human resource management process and the important influence on that process?

Q.NO. 5 Define leader and leadership and why mangers should be leaders?

THE END

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MIDSEMESTER EXAMINATION OF 2ND SEMESTER 1ST YEAR (3RD SEMESTER), OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

FUNDAMENTALS OF MANAGEMENT (THEORY)

DATED 13-02-2020 **TIME ALLOWED 90 MINUTES** **MAX. MARKS 20**

Student Name : Amna Zafar **Student Id Number :** 19-BSCS-07

Instructions:

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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q=1 In today's environment, which is more important to organizations—efficiency or effectiveness? Explain your choice

Q=2 (a) What is environmental uncertainty? What impact does it have on managers and organizations?

Q=2 (b) Explain how a manager might deal with making decisions under conditions of uncertainty?

Q= 3 Describe the eight steps in the decision-making process

Q= 4 Is your course instructor a manager? Discuss in terms of planning, organizing, leading, and Controlling? Also discuss using Mintzberg's managerial roles approach

THE END

Calculate the standard deviation. Also find the total number of chips between -1σ to +1σ.
Note: The values are a random sample drawn from the total population.

Q. No. 4. Let's assume; an exam of N number of students of 19-BSCS is going to be held. The exam hall has limited number of available seats.

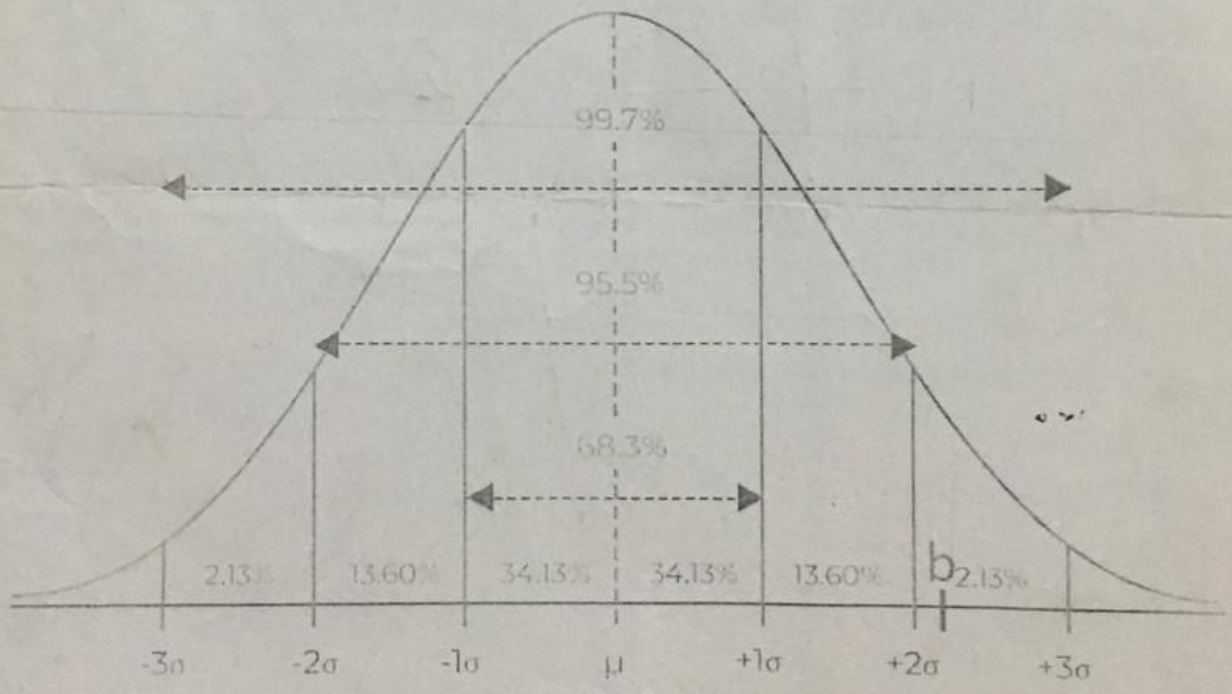
a. 10 seats
b. 8 seats
c. 6 seats
d. 4 seats
e. 2 seats

Where, $N = \begin{cases} \frac{Your\ Roll\ Number}{2} & if\ your\ Roll\ number\ is\ even\ number\ and \geq 20 \\ \frac{1}{2} + \frac{Your\ Roll\ Number}{2} & if\ your\ Roll\ number\ is\ odd\ number\ and \geq 20 \\ 15 & If\ your\ Roll\ number < 20 \end{cases}$

Calculate the Permutation and Combination of above.

Q. No. 5. Drive area under the curve of the following Normal distribution

i. Area under the curve from 0 to b
ii. Area under the curve from 0 to infinity



No. of standard deviations from the mean

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FINAL EXAMINATION OF 1ST SEMESTER 2ND YEAR (3RD SEMESTER) OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

PROBABILITY & STATISTICS (THEORY)

DATED 21-09-2020 **TIME ALLOWED 03 HOURS** **MAX. MARKS 60**

Student Name : _____ **Student Id Number :** _____

Instructions:

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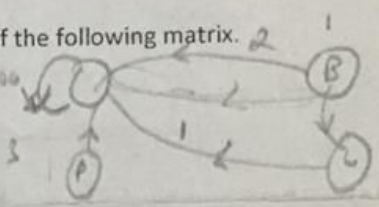
NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No. 1. Explain Absorbing Markov Chain. Find the stable distribution matrix of the following matrix.

a. $P = \begin{bmatrix} 0.6 & 0.3 & 0.2 \\ 0.2 & 0.6 & 0.2 \\ 0.2 & 0.1 & 0.6 \end{bmatrix}$

b. $P = \begin{bmatrix} 1 & 0.2 & 0.1 & 0.3 \\ 0 & 0.4 & 0.1 & 0.1 \\ 0 & 0.2 & 0.6 & 0.1 \\ 0 & 0.2 & 0.2 & 0.5 \end{bmatrix}$ (A, B, C, D)



Q. No. 2 (a). Let's assume there are 10 students in a batch, who entered in university. There are 60% chances that they will attend the class of Probability and Statistics. Calculate the following.

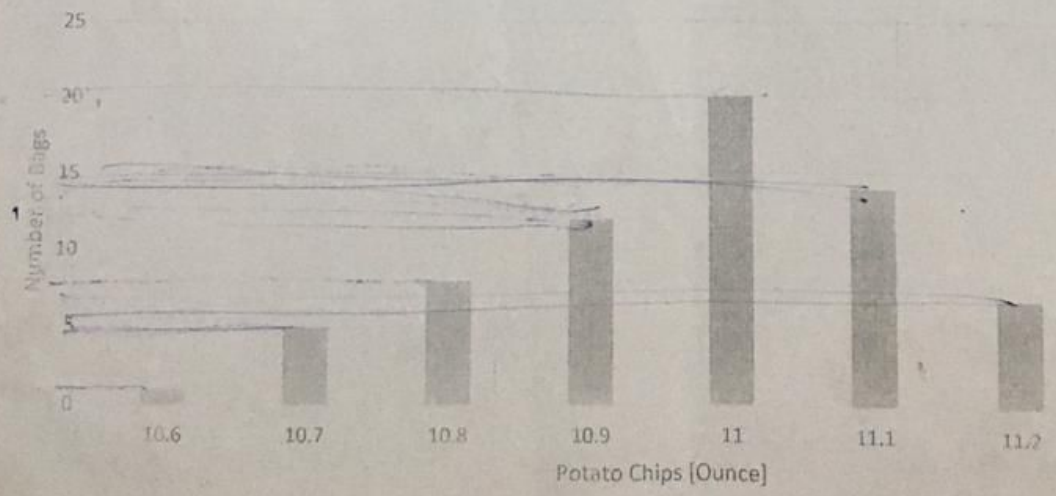
i. What is the Probability that at least 1 student will attend the class.

ii. What is the Probability that 4 students will attend the class.

iii. What is the probability that all 10 students will attend the class.

Q. No. 2 (b). Explain the Binomial Distribution.

Q. No. 3. We want to pick 10.8 ounce bags of potato chips. If we pick 70 bags randomly. The weight of the bags in shown in following figure.



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MIDSEMESTER EXAMINATION OF 2ND SEMESTER 1ST YEAR (3RD SEMESTER), OF 2019 BATCH OF BS. COMPUTER SCIENCE, OF 2020.

PROBABILITY & STATISTICS (THEORY)

DATED 14-02-2020 **TIME ALLOWED 90 MINUTES** **MAX. MARKS 20**

Student Name : _____ **Student Id Number :** _____

Instructions:

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NOTE: - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No. 1. Let's assume; a bus is riding from Karachi to Lahore. There are total *N* number of passengers who want to travel. The bus has following number of available seats.

a. 10 seats
b. 8 seats
c. 6 seats
d. 4 seats
e. 2 seats

n=15

$$\text{Where, } N = \begin{cases} \frac{\text{Your Roll Number}}{2} & \text{if your Roll number is even number and} \geq 20 \\ \frac{1}{2} + \frac{\text{Your Roll Number}}{2} & \text{if your Roll number is odd number and} \geq 20 \\ 15 & \text{If your Roll number} < 20 \end{cases}$$

Calculate the Permutation and Combination of above.

Q. No. 2. If we flip *N* number of coins, calculate the following.

a. Number of outcomes for the event A = { (*N*-2) Heads }.
b. Total number of outcomes in the sample space.
c. Probability of event A.

Where, the value of N is given in Q. No. 1.

Q. No. 3. Calculate the following.

a. If we roll a die twice, what is the probability of getting at least one 6?
b. If we roll two dice, what is the probability of getting double 6 in 24 tries?
c. If we roll two dice, how many attempts are needed to get *P(Double six)=0.99*? 164.

Q. No. 4 (a) What is the probability of a person being born in a month that contains letter "R", if the person was born in a 31-day month?

Q. No. 4 (b) Let's assume there is a box of 10 choclates (5 Dark and 5 Milk), what is the probability of taking 2 Dark and 1 Milk choclate?