**National University of Computer & Emerging Sciences, Karachi**
**Spring-2018 CS-Department**
**Mid Term 1**
**27th Febraury 2018, 1:00 pm – 2:00pm**

| Course Code: MT - 206 | Course Name: Probability & Staistics |
|---|---|
| Instructor Name :Muhammad Amjad , Osama Bin Ajaz, & Asma Masood | |
| Student Roll No: | Section No: |

Instructions :

- Return the question paper.
- Read each question completely before answering it. There are **3 questions and 2 page.**
- In case of any ambiguity, you may make assumption. But your assumption should not contradict any statement in the question paper.
- All the answers must be solved according to the sequence given in the question paper.
- Write down all answer in the Answer sheet.

**Time**: 60 minutes. **Max Marks:** 30 points

**Proposed time: 15 minutes** **[Marks:10]**

Q-1(a) write down the apppropriate answer of the following Mcq's. [marks: 2.5]

i. When a distribution is symmetric, the highest point on the curve is _____.

a) Mean
b) Median
c) Mode
d) All of the above

ii. If the moment ratio is $\beta_2=3$, the distribution is _____.

a) Mesokurtic
b) Leptokurtic
c) Platykurtic
d) None

iii. In how many ways can 4 boys and 5 girls sit ina row if the boys and girls must alternate?

a) 3233
b) 1444
c) 2880
d) 4350

iv. The mean of 24 values is 41.75. if an additional value 68 is included in the data, find mean.

a) 98.6
b) 33.2
c) 42.8
d) 41

v. In "Measures of Position" $Q_3$= _____.

a) $P_{20}$
b) $P_{75}$
c) $Q_1$
d) $D_5$

Q-1(b)

| | | | | |
|---|---|---|---|---|
| 10 | 14 | 05 | 17 | 09 |
| 08 | 24 | 22 | 13 | 26 |
| 32 | 27 | 00 | 04 | 20 |

From the above data, calculate

i. First moment about mean is always zero. [marks:2.5]
ii. Quartile Deviation [marks:2.5]
iii. Construct box plot [marks:2.5]

**Proposed time: 25 minutes** **[Marks:10]**

Q-2 the following scores represent the final examination grades for an elementary statistics course:

23, 60, 79, 32, 57, 74, 52, 70, 82, 36, 80, 77, 81, 95, 41, 65, 92, 85, 55, 76, 52, 10, 64, 75, 78, 25, 80, 98, 81, 67,

i. Construct a stem-and-leaf plot for the examination grades. [marks:2.0]
ii. Construct group frequency distribution consisting of first class (10 -- 24) and make histogram. [marks:4.0]
iii. Compute sample standard deviation and skewness using part (ii). [marks:4.0]

**Proposed time: 20 minutes** **[Marks:10]**

Q-3 (a) How many different Permutation can be made from the letters of the word "INDEPENDENT" taken altogether.. [marks:1.5]

Q-3(b) In an Institution there are 25 men and 10 women ,how many committee can be formed each consisting of 5 men and 3 women? [marks:2.0]

Q-3(c) Two fair coin are tossed simultaneously . What is the probabilty that at least one head will be appear? [marks:1.5]

Q- 3(d)Two dice are thrown together What is the probability of obtaining:

(i) a total of exactly 8 points. [marks:1.5]
(ii) a total of 8 or more points. [marks:1.5]

Q- 3(e) A bag contains 10 blue and 5 black balls.Two balls are drawn in successeion without replacement . Find the probability that the second ball is black when it is known that the first ball was blue. [marks:2.0]

========== best of luck==========