SECI 1143: PROBABILITY & STATISTICAL DATA ANALYSIS
2024/2025 – SEMESTER 2

QUIZ 1

Marks:
15

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Date : 11/5/2025

QUESTION 1 **[3 MARKS]**

A school counselor is analyzing the weekly pocket money received by 15 randomly selected students to understand their spending capacity. The data (in RM) collected from the students are as follows:

| 15 |20 | 25 | 30 | 35 | 40 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |

a) What is the **mean** of the pocket money received by the students? (1 marks)

b) What is the **median** of the pocket money received by the students? (2 marks)

QUESTION 2 **[7 MARKS]**

A supermarket manager recorded the number of items purchased by 50 customers during a weekend promotion. The data is grouped as follows **(Table 1):**

Table 1: Items Purchased by 50 Customers During the Weekend Promotion

Number of Item Purchased	Frequency
1 – 5	6
6 – 10	10
11 – 15	18
16 – 20	9
21 – 25	7
26 – 30	10

a) Fill in the missing information below () based on the data given in **Table 1**. (3 marks)

Class Interval (in kg)	Midpoint (in kg)	Frequency	Cumulative Frequency
1 – 5		6	
6 – 10		10	
11 – 15		18	
16 – 20		9	
21 – 25		7	
26 – 30		10	
Total		50	

b) Calculate the median number of items purchased using the formula: (4 Marks)

$$median = L + (\frac{(\frac{N}{2} - cf_p)}{f_{med}}) \times W$$

QUESTION 3 **[5 MARKS]**

A manager collected the weekly number of customer complaints received over 8 weeks, as shown below:

Number of complaints per week:

$$12,\ 15,\ 11,\ 18,\ 14,\ 17,\ 13,\ x$$

Given that the **75th percentile** of this data set is **16**, determine the missing data point (***x***).

Aswini A/p Chandrasagaran QUIZ 1 No. Date
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1) a. $\frac{15+20+25+30+35+40+20+25+30+35+40+45+50+55+60}{15}$

$= \frac{525}{15}$

$= 35$

b. 15, 20, 20, 25, 25, 30, 30, (35), 35, 40, 40, 45, 50, 55, 60

$= 35$.

2) a.

class Interval (in kg)	Midpoint (in kg)	Frequency	Cumulative Frequency
1-5	3	6	6
6-10	8	10	(16)
11-15	13	(18)	34
16-20	18	9	43
21-25	23	7	50
26-30	28	10	60
Total		60	

$\frac{1+5}{2} = 3$, $\frac{6+10}{2} = 8$, $\frac{11+15}{2} = 13$, $\frac{16+20}{2} = 18$, $\frac{21+25}{2} = 23$, $\frac{26+30}{2} = 28$.

(11 - 0.5) (15.5 - 10.5)

b. $\frac{60}{2} = 30$ $N=60$, $L=10.5$, $cf_1 = 16$, $f_{med} = 18$, $W = 5$.

$= 10.5 + \left(\frac{\frac{60}{2} - 16}{18}\right) \times 5$

$= 10.5 + \left(\frac{14}{18} \times 5\right)$

$= 10.5 + 3.89$

$= 14.39$.

3) 11, 12, 13, 14, (15, 17) 18, x

$x < 16$ $\quad i = (75 \times 8) \div 100 = 6.$

$n = 8$

$p = 75$

$\frac{P}{100} \cdot n = \frac{75}{100} \times 8 = 6.$

$\frac{value_6 + value_7}{2} = x$

$\frac{value_6 + value_7}{2} = 16.$

$value_6 + value_7 = 32 \rightarrow Y[6] = 17, Y[7] = 18 \quad (17+18) = 35$ not match.

$Y[6] = 17, Y[5] = 15 \quad (17+16) = 32$ match.

$17 + x = 32.$

$x = 15$