

**Department of Statistics  
& Operations Research  
College of Science, King Saud University**

*STAT 106 – First Exam Semester I - 1431- 1432 H*

<b>Student Name:</b>			
<b>Student Number:</b>		<b>Section Number:</b>	
<b>Teacher Name:</b>		<b>Attendance Number</b>	

- Mobile Telephones are not allowed in the Exam Rooms.
- Time allowed is 90 minutes
- Answer all questions.
- Choose the nearest to your answer.
- For each question, **put the code in capital letter** of the correct answer, in the following table, beneath the question number:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>

<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>

<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>

**Question 1:**

1. The sum of the relative frequency distribution is equal to :  
 (A) 100                      (B) n                      (C) 1                      (D) none of these
  
2. The mean is a suitable measure for:  
 (A) Qualitative data only      (B) Quantitative data only      (C) both quantitative and Qualitative      (D) none of these
  
3. If observations of some variable are measured in kilograms, then the coefficient of variation is measured in :  
 (A) kilograms      (B) (kilograms)<sup>2</sup>      (C) does not have a unit      (D) none of these
  
4. If a data set has some extreme values then,  
 (A) the mean is affected more than the median      (B) the median is affected more than the mean      (C) both are not affected      (D) both are affected in the same way
  
5. If we have two groups of data A and B, and the coefficient of variation of group A is greater than the coefficient of variation of group B, then the data of group A:  
 (A) has less variability than group B      (B) has more variability than group B      (C) has the same variability as group B      (D) none of these

**Question 2:**

The following table is the result of a study on 25 students indicating how many courses they have failed last year :

No. of courses failed	Frequency
0	5
1	6
2	7
3	2
4	3
5	2

6. The mean number of courses failed is:
- (A) 4.16            (B) 1.92            (C) 2.5            (D) it is not possible to calculate the mean for this data set
7. The variance of number of courses failed is:
- (A) 2.1            (B) 13            (C) 4.41            (D) it is not possible to calculate the variance for this data set
8. The percentage of students who failed at least 4 courses last year is:
- (A) 20%            (B) 80%            (C) 30%            (D) 50%
9. The median number of courses failed is:
- (A) 1            (B) 2            (C) 3            (D) it is not possible to calculate the median for this data set
10. The mode of the number of courses failed is:
- (A) 1            (B) 3            (C) 2            (D) there is no mode for this data set
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**Question 3:**

►► For a sample of 100 cancer patients in Saudi Arabia, we measure how long the patient lives after diagnosis. In this experiment:

11. The population is :
- (A) Saudi Arabia            (B) all cancer patients in Saudi Arabia            (C) 100 Saudi patients            (D) all Saudi patients
12. The Variable is:
- (A) number of patients            (B) cancer            (C) length of life after diagnosis            (D) all Saudi patients
13. And the type of the variable is:
- (A) Qualitative            (B) Quantitative and discrete            (C) Quantitative and continuous            (D) none of these

14. The sample size is:

- (A) Saudi Arabia (B) Saudi patients (C) Saudi adults (D) 100 cancer patients

**Question 4:**

The ages (in years) of 50 patients were recorded as follows:

Age	Frequency ( $f_i$ )	Mid points of age intervals ( $x_i$ )	$f_i x_i$	$f_i (x_i)^2$
10-20	7	15	105	1575
20-30	18	25	450	11250
30-40	16	35	560	19600
40-50	9	45	405	18225
<b>TOTAL</b>	<b>50</b>		<b>1520</b>	<b>50650</b>

From the information summarized in this table we can say that:

15. The approximate mean age of those patients is:

- (A) 26.6 (B) 2.4 (C) 30.4 (D) 37.1

16. The approximate variance of the ages of those patients is :

- (A) 44.13 (B) 6.64 (C) 7721.21 (D) 90.65

**Question 5:**

17. If we subtract 8 from each observation of a data set, then the variance of the new data set :

- (A) will be smaller (B) will be larger (C) will not change (D) none of these

18. If we add 5 to each observation of a data set, then the mean of the new data set :

- (A) will be smaller (B) will be larger (C) will not change (D) none of these

**Question 6:**

19. The variance of values 9, 9, 9, 9, 9, 9, 9 equal .....

- (A) 9                      (B) 0                      (C) 18                      (D) 4.5

20. The range of the sample values: 36, 12, 8, 40, 5 equal .....

- (A) 35                      (B) 31                      (C) 32                      (D) 28

21. From a data set we have  $\bar{x} = 66 \text{ kg}$  and C.V.=6.8% then the standard deviation equal .....

- (A) 3.5                      (B) 2                      (C) 5                      (D) 4.5

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**Question 7:**

►► The weights of 12 students in a statistical course were as follows:

55 , 55 , 57 , 59 , 59 , 61 , 61 , 61 , 61 , 63 , 63 , 63

22. The sample mean of the students weights is

- (A) 60                      (B) 59.833                      (C) 59                      (D) 57

23. The sample mode of the students weights is

- (A) 61                      (B) 59                      (C) 55                      (D) 63

24. The sample standard deviation of the students weights is

- (A) 2.764                      (B) 2.887                      (C) 7.639                      (D) 8.333

25. The coefficient of variation of the data is:

- (A) 4.8%                      (B) 20.7%                      (C) 13.9%                      (D) 2.1%