Q1- The following information has been collected from 75 patients who visited the diabetic clinic in Riyadh:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Frequency</th>
<th>Relative Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 - 14</td>
<td>6</td>
<td>0.08</td>
<td>6</td>
</tr>
<tr>
<td>15 - 24</td>
<td>9</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>25 - 34</td>
<td>Y</td>
<td>0.24</td>
<td>33</td>
</tr>
<tr>
<td>35 - 44</td>
<td>24</td>
<td>0.32</td>
<td>57</td>
</tr>
<tr>
<td>45 - 54</td>
<td>15</td>
<td>0.20</td>
<td>Z</td>
</tr>
<tr>
<td>55 - 64</td>
<td>3</td>
<td>0.04</td>
<td>75</td>
</tr>
</tbody>
</table>

1- the value of \( X \) is :
   A) 0.12                           B) 0.20                           C) 9                       D) 12

2- the value of \( Y \) is :
   A) 0.18                           B) 0.20                           C) 18                     D) 12

3- the value of \( Z \) is :
   A) 80                             B) 0.20                           C) 0.72                    D) 72

4- If the ages have mean=35.1 and standard deviation = 12.76, then the coefficient of variation (\( C.V \)) of the ages is :
   A) 0.765                           B) 36.35%                         C) 162.82                  D) 12.76

5- the unit of the \( C.V \) of age is :
   A) Year                           B) kg                             C) No unit                  D) None

6- If the \( C.V \) of the patient weight is 27.5%, then:
   A) Age has more variability       B) Weight has more variability
   C) Both have the same variability D) None

Q2- If one person is selected randomly from a set of 75 persons which are classified according to three categories of ages and three categories of weights:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Slim (S)</th>
<th>Normal (N)</th>
<th>Fat (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(05 – 24) year (A1)</td>
<td>15</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>(25 – 44) year (A2)</td>
<td>10</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>(45 – 64) year (A3)</td>
<td>7</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

7- The probability \( P(A1 \cup N) \) is:
   A) 4/5                           B) 2/3                           C) 2/15                    D) 72

8- The probability \( P(A1 | N) \) is:
   A) 10/27                          B) 10/75                         C) 10/33                   D) None

9- The probability \( P(N) \) is
   A) 13/75                          B) 12/75                         C) 11/25                   D) 14/25

10- The events \( A1 \) and \( N \) are:
    A) Independent                    B) Dependent                    C) Disjoint                D) None

11- The events \( S \) and \( F \) are:
    A) Mutually exclusive (Disjoint)  B) Not Disjoint
12- The probability \( P (S \cup F) \) is:
   A) 14/25       B) 2/3       C) 1/3       D) 11/25

Q3- The weights to nearest kg of 7 patients are: 16, 10, 9, 46, 15, 16, 10:
13- The median of weight is:
   A) 10       B) 15       C) 19.1       D) 46

14- The mean of weight is:
   A) 10       B) 15       C) 19.1       D) 17.43

15- This data has:
   A) One mode   B) Two modes   C) Three modes   D) No mode

16- For this data, the best of center measure is:
   A) The mode   B) The median   C) The mean   D) None

17- The range of this data is:
   A) 7       B) -6       C) 6       D) 37

18- The standard deviation of this data is:
   A) 167.95   B) 12.96   C) 17.43   D) 12.0

Q4- In order to check the reliability of a given Lab in Riyadh, suppose a sample with diabetic disease (\( D \)) and another without disease (\( \overline{D} \)) had the Lab tests and the results are as given below:

<table>
<thead>
<tr>
<th></th>
<th>Present (( D ))</th>
<th>Absence (( \overline{D} ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (( T ))</td>
<td>630</td>
<td>15</td>
</tr>
<tr>
<td>Negative (( \overline{T} ))</td>
<td>20</td>
<td>335</td>
</tr>
</tbody>
</table>

Use this data to answer the questions:

19- The probability of false positive result is:
   A) 3/70   B) 7/20   C) 2/65   D) 7/200

20- The probability of false negative result is:
   A) 3/70   B) 7/20   C) 2/65   D) 7/200

21- The sensitivity of the test is:
   A) 67/70   B) 3/70   C) 2/65   D) 63/65

22- The specificity of the test is:
   A) 67/70   B) 3/70   C) 2/65   D) 63/65

If the true Diabetic percentage in Riyadh is 20\%, then:

23- The predictive value positive of the test is:
   A) 0.977   B) 0.85   C) 0.944   D) 0.992

24- The predictive value negative of the test is:
   A) 0.977   B) 0.85   C) 0.944   D) 0.992