COURSE CODE: BBM 2216
COURSE TITLE: STATISTICS AND QUANTITATIVE METHODS IN BUSINESS
EXAM VENUE: LR
STREAM: (DBA)
DATE:
EXAM SESSION:
TIME: 1 ½ HOURS

Instructions:
1. Answer Question ONE (COMPULSORY) and ANY other 2 questions.
2. Candidates are advised not to write on the question paper.
3. Candidates must hand in their answer booklets to the invigilator while in the examination room.
QUESTION ONE

a) Explain the difference between the following terms;

i) Descriptive statistics and Inferential statistics

ii) Measure of central tendency and Measure of dispersion

iii) Mutually exclusive events and Independent events [12 marks]

b) The data below represents ages in years of 56 members of a congregation taken randomly:

15,18,19 12,14,12,13, 15,15,16,17,29,18,18,17,26,30,40,26
15,23,21,22,20,21,20,20,35,36,40,39,41,45,49,29,19,21
35,37,49, 46, 41,42,43,44, 23,24,24, 21, 36,35,26,35,37,39

Required

i) Using a class interval of 5, Present the above data in a frequency distribution table and compute the following:

ii) Range

iii) Actual mean

iv) Standard deviation

v) Coefficient of variation [18 marks]

QUESTION TWO

a) Explain the meaning of the following as used in probability theory:

i) Random experiment

ii) Sample space

iii) Event

iv) Outcome [8 marks]

b) A bag contains 8 black balls and 5 white balls. If 2 balls are drawn from the bag, one at a time find the probability of drawing a black ball and a white ball;

i) With replacement

ii) Without replacement [12 marks]
QUESTION THREE

a) Discuss five assumptions of linear regression [10marks]

b) Calculate Karl Pearson’s coefficient of correlation for the following ages of male and female casual workers in an organization. [10 marks]

Age of males (in years): 23, 27, 28, 28, 30, 30, 33, 35, 38

Age of females (in years): 18, 20, 22, 27, 21, 29, 27, 29, 28, 29 [10 marks]

QUESTION FOUR

a) Discuss the importance of time series analysis in Business decision making. [12 marks]

b) Briefly explain four components of time series [8 marks]

QUESTION FIVE

a) Briefly describe five conditions that must be met for a Chi-Square analysis to be applied. [5marks]

b) During an outbreak of smallpox in a Kerina town, a sample of 2000 residents was taken. It was found out that out of these, 500 had been vaccinated against the disease while the rest had not been vaccinated. The table below shows the data obtained

<table>
<thead>
<tr>
<th></th>
<th>ATTACKED</th>
<th>NOT ATTACKED</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACCINATED</td>
<td>31</td>
<td>469</td>
<td>500</td>
</tr>
<tr>
<td>NOT VACCINATED</td>
<td>185</td>
<td>1315</td>
<td>1500</td>
</tr>
<tr>
<td>TOTAL</td>
<td>216</td>
<td>1784</td>
<td>2000</td>
</tr>
</tbody>
</table>

Required: Using 1 degree of freedom, and 5% level of significance, test if the vaccination was effective in preventing the attack from smallpox. [15MARKS]