

UNIVERSITY OF BOLTON
INSTITUTE OF MANAGEMENT
BA (HONS) ACCOUNTANCY
SEMESTER ONE EXAMINATION 2021/2022
QUANTITATIVE METHODS FOR ACCOUNTANTS
MODULE NO: ACC4018

Date: Thursday 13th January 2022

Time: 10:00 – 13:00

INSTRUCTIONS TO CANDIDATES:

There are **FOUR COMPULSORY** questions on this paper.

Answer **ALL FOUR** questions.

All questions carry equal marks.

Calculators may be used but full workings must be shown.

Formulae books, which contain statistical tables will be provided.

Graph paper (two sheets).

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Question 1

Koko's beauty Ltd sells a wide variety of beauty supplies including wigs. The quarterly management accounts for the recent quarters shows that the following numbers of wigs were sold in the four quarters of the year:

YEARS	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4
2018	2000	1600	2200	4800
2019	2200	2000	2500	5200
2020	2400	2400	3100	5600
2021	2600	2800	3400	6000

- a) Use a 4 point moving average to analyse the data to show the trend.
 (10 marks)
- b) Calculate the average seasonal variations from the trend.
 (7 marks)
- c) Use the data to forecast the sales for each quarter of 2022.
 (8 marks)

(Total 25 marks)

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Question 2

A school girl takes part in a swimming competition. She takes three attempts at scoring her fastest time.

The probabilities are as follows:

She has a 0.70 probability of successfully scoring the highest speed at her first attempt.

If she succeeds at the first attempt, the same probability applies on the next two attempts.

If she is not successful at any time, the probability of succeeding on any subsequent attempts is only 0.4.

Use a tree diagram to find the probabilities that:

- a) Draw a tree diagram to show the probabilities of success or failure **(5 marks)**
- b) She is successful on all her first three attempts. **(5 marks)**
- c) She fails at the first attempt but succeeds on the next two. **(5 marks)**
- d) She is successful just once in three attempts **(5 marks)**
- e) She is still not successful after the third attempt **(5 marks)**

(Total 25 marks)

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Question 3

The Table below shows a sample of 40 members lifting weights (Kg) in a gym.

32	58	43	67	26	65	53	37
41	34	59	40	68	37	58	50
63	46	27	61	51	55	31	32
24	69	50	57	45	45	47	57
37	45	61	44	49	43	66	40

- a) Produce a grouped frequency distribution (GFD) table for this data. **(5 marks)**
- b) Draw a histogram of the grouped frequency distribution, and on the same graph estimates the mode weight. **(5 marks)**
- c) From the GFD calculate the mean deviation **(5 marks)**
- d) From the GFD calculate the mean weight. **(5 marks)**
- e) Calculate the corresponding variance and standard deviation. **(5 marks)**

(Total 25 marks)

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Question 4

A quants lecturer wants to determine the relationship between student attendance and the exam results.

The monthly exam results is thought to depend on the student attendance.

The table below shows a record for a random sample over 10 months.
 Data shows:

Month	Monthly Exam Results (%)	Attendance (%)
1	60	80
2	55	65
3	42	55
4	87	94
5	28	45
6	20	44
7	70	72
8	19	30
9	91	98
10	72	75

Required:

Please show all calculation workings.

- Draw a scatter diagram of these results. **(5 Marks)**
- Calculate the equation of the least square regression line of "y on x" and then draw this line on the scatter diagram. **(10 Marks)**
- Calculate the Pearson's correlation coefficient, r and the coefficient of determination r^2 . **(6 Marks)**
- Use the regression equation/line to predict the likely results of 2 months if attendance is 25, and 35 respectively. **(4 marks)**

(Total 25 marks)

END OF QUESTIONS