OCD065

UNIVERSITY OF BOLTON

WESTERN INTERNATIONAL COLLEGE FZE

BA (HONS) ACCOUNTANCY

SEMESTER 1 2018/2019

QUANTITATIVE METHODS FOR ACCOUNTANTS

MODULE NO: ACC4018

Date: Thursday 17th January 2019 **Time: 1.00pm – 4.00pm**

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.

Graph paper (four sheets).

Western International College FZE
Accountancy Pathway
Semester 1 Examination 2018/19
Quantitative Methods
Module No ACC4018

Question 1

A factory produces two products: Saffron and Silk. The contribution to profit that can be obtained is £25 per unit from Saffron, and £35 per unit from Silk. The factory employs 200 skilled workers and 150 unskilled workers, and they work a 40 hour week. The time required to produce 1 unit of Saffron is 6 skilled hours and 4 unskilled hours, whilst for 1 unit of Silk is 5 skilled hours and 7 unskilled hours.

a) Arrange the given information into tabular form.

(2 Marks)

b) Translate the problem into a linear programming one, identifying and writing down the objective function and the constraints.

(3 marks)

c) Plot the inequalities on a graph and identify the feasible region.

(10 marks)

d) Find the optimum solution that satisfies the objective function.

(10 marks)

(Total 25 marks)

Please turn the page

Western International College FZE
Accountancy Pathway
Semester 1 Examination 2018/19
Quantitative Methods
Module No ACC4018

Question 2
A college girl takes part in a shot put competition. She has three attempts at throwing the shot put and scoring the highest score.

The probabilities are as follows:

She has a 0.7 probability of successfully scoring the highest score 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 0.2.

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)

Western International College FZE
Accountancy Pathway
Semester 1 Examination 2018/19
Quantitative Methods
Module No ACC4018

Please turn the page

Question 3

The Table below shows a sample of 40 patients age on a hospital ward.

26	52	37	61	20	59	47	31
35	28	53	34	62	31	52	44
57	40	21	55	45	49	25	26
18	65	44	51	39	39	41	51
31	39	55	38	43	37	60	34

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 estimate the mode age.

(5 marks)

c) From the GFD calculate the mean deviation

(5 marks)

d) From the GFD calculate the mean age.

(5 marks)

e) Calculate the corresponding variance and standard deviation.

(5 marks)

(Total 25 marks)

Please turn the page

Western International College FZE
Accountancy Pathway
Semester 1 Examination 2018/19
Quantitative Methods
Module No ACC4018

Question 4

A factory producing hand carved wooden tables made from indian rosewood wants to determine the relationship between the cost of output and the number of tables (units) produced.

The cost of output is thought to depend on the number of units produced.

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

Month	**Output (Units)**	**Cost (£'000)**
1	4	5
2	6	7
3	2	4
4	8	9
5	6	7
6	10	14
7	5	6
8	1	2
9	3	3
10	5	6

Required:
Please show all calculation workings.

e) Draw a scatter diagram of these results.

(5 marks)

f) Calculate the equation of the least square regression line of "y on x" and then draw this line on the scatter diagram.

(10 marks)

g) Calculate the Pearson's correlation coefficient, r and the coefficient of determination r^2.

(**6 marks)**

h) Use the regression equation/line to predict the likely cost of 2 months if output is 7, and 9 respectively.

(4 marks)
(Total 25 marks)

Western International College FZE
Accountancy Pathway
Semester 1 Examination 2018/19
Quantitative Methods
Module No ACC4018

END OF QUESTIONS