JARAMOGI OGINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION 2014/2015
3RD YEAR 2ND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS
ADMINISTRATION WITH IT(FINANCE AND ACCOUNTING OPTION)
BUSIA LEARNING CENTRE
ABA 315:QUANTITATIVE METHODS IN BUSINESS I

DURATION: 2HOURS
INSTRUCTIONS
1. This paper contains five (5) questions.
2. Answer question 1 (compulsory) and any 2 other questions.
3. Write all answers in the booklet provided.

1 (a) (i) When are events said to be independent? Give an example. (2mks)

(ii) A firm is independently working on two separate jobs. There is a probability of only 0.3 that either of the jobs will be finished on time. Find the probability that at least one of the jobs is finished on time   (4mks)

b) If $\frac{dy}{dx}=2x^{-2}$ and y=3 when x=2, find y in terms of x.   (6mks)

c) Explain the terms: (i) holding costs   (2mks)

(ii) Stock out costs   (2mks)

ii) Give two examples of the ordering costs   (2mks)

d) The table below shows the number of tourists who visited Kenya during the year of 2010

MONTHS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
No. Of tourists (000s)	2.2	5.0	7.9	3.2	2.9	5.2	8.2	3.8	3.2	5.8	9.1	4.1

Use the method of semi-averages to obtain and plot a trend line. Estimate the number of tourists in January the following year. (6mks)

e) Draw the network for the following activity list   (6mks)

Activity	Preceding Activity
A, B	-
C, D	A
E	B
F	C

2. a). Given that y= $x^{\frac{1}{3}}$ - $x^{-\frac{1}{3}}$

i.) Find $\frac{\partial y}{\partial x}$ (3mks)

ii.) Evaluate $\int_0^1 y \, dx$ (3mks)

b). The total revenue obtained ($000) from selling x hundred items in a particular day is given by R which is a function of variable x. Given that R'(x) =20-4x:

i. i) Determine the total revenue function R   (3 mks)

ii. ii) find the number of items sold in one day that will maximise the total revenue and evaluate this total revenue   (6 mks)

c) A community has a steady rate of demand of 2000 per year. Placing an order costs £10 and it costs £ 0.1 to hold a unit for a year. Determine:-

     i.   Economic ordering quantity (EOQ)   (3 mks)

     ii.   The number of orders placed per year   (2 mks)

3 a)   What is a statistical experiment? Give one example.   (3mks)

  b)   Define a sample space**.** List the sample space for a coin tossed 4 times.   (3mks)

  c). i   A box contains 3 white marbles and 4 black marbles. What is the probability of drawing 2 black marbles and 1 white marble in succession without replacement?   (3mks)

   ii A bag contains two red sweets and three green sweets. Jacques takes one sweet from the bag, notes its colour, and then eats it. He then takes another sweet from the bag. Draw the tree diagram to show all probabilities. (3mks)

  d) The following data relate to the number of sales made by a company over a number of weeks:

Weekly sales	Up to 10	10 to 19	20 to 29	30 to 39	40 and over
No of weeks	2	12	22	10	4

Find the probability that the next week the firm will make the following number of sales:-

     i. at least 20   (2 mks)

     ii. more than 39   (3 mks)

     iii between 10 and 29 inclusive   (3 mks)

4 a).   Define the term time series (2mks)   (2 mks)

  b).   The table below shows the sales of a given commodity in a certain supermarket for 2 weeks.

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sales	22	36	40	48	58	42	34	61	58	64	70	69	80	77

Using 4 day moving averages obtain and plot a trend line. Briefly describe the trend. (10 mks)

c) Briefly describe the four components of time series   (6 mks)
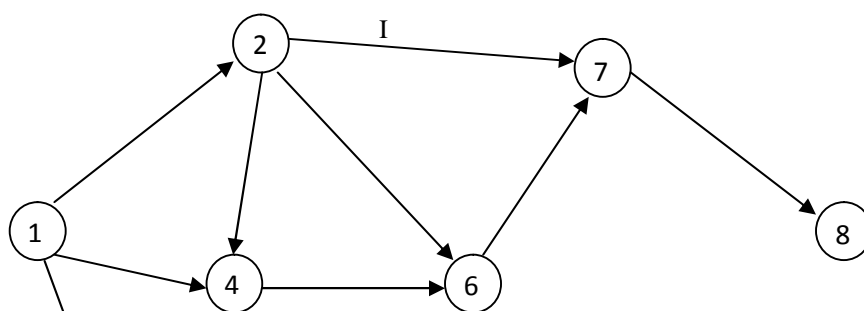
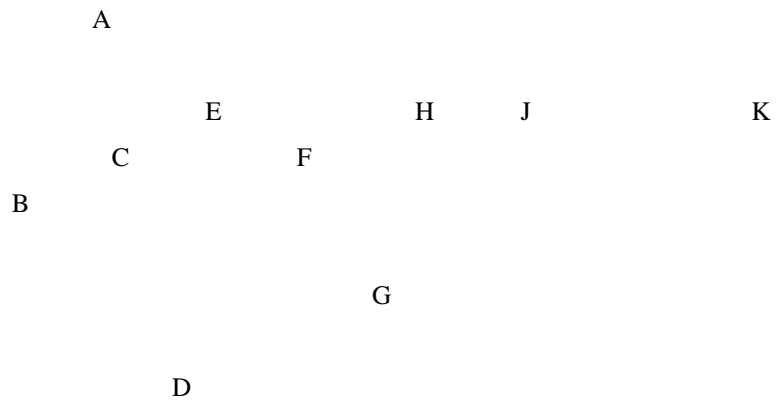d) Highlight the importance of time series.   (2mks)

5 a) Explain what is meant by network planning (2mks)

  b) Highlight the procedures involved in network planning (5mks)

 c) The activities A to K in the network specified below have duration time as follows

A	B	C	D	E	F	G	H	I	J	K
8	4	3	6	2	8	9	7	5	2	3

A

E   H   J   K
C   F
B

G

D

i)   Write out the lists of all possible paths through the network and calculate their time lengths

(10 mks)

ii)   Determine the total project time and thus the critical path   (3 mks)