INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session	:	**August 2018**		
Programme	:	Diploma In Business Management (DBM)		
Course	:	**WBUS1105 : Business Analytics**		
Date of Examination	:	December 9, 2018 (Sunday)		
Time	:	2:00 pm – 4:00 pm	Reading Time :	Nil
Duration	:	2 Hours		

Special Instructions :

Section A: Answer **ALL** Multiple Choice questions in the **OMR** sheet provided.

Section B: Answer **TWO (2)** out of **THREE (3)** question.

IMPORTANT NOTE : THIS PAPER SHOULD NOT BE TAKEN OUT OF THE EXAMINATION HALL

Material permitted :

Calculator

Materials provided :

OMR Sheets,Answer Booklet and Formula Booklet 2

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Moderator : Mr Foo Kai Pin

*This paper consists of **11** printed pages, including the cover page*

INTI INTERNATIONAL UNIVERSITY & COLLEGES

DIPLOMA IN MANAGEMENT PROGRAMME (DBM)
WBUS1105: BUSINESS ANALYSIS
FINAL EXAMINATION: AUGUST 2018 SESSION

Section A (50 marks)
Instructions: This section consists of **TWENTY FIVE (25)** multiple choice questions. Answer all questions in the **OMR** sheet provided.

1. Data that is organized in classes is

   A. raw data
   B. grouped data
   C. ungrouped data
   D. discrete data

2. Number of times each data occur is called

   A. data
   B. mode
   C. frequency
   D. distribution

3. The mean of a sample is

   A. always equal to the mean of population.
   B. always smaller than the mean of population.
   C. computed by summing the data values and dividing the sum by the number of items.
   D. None of the above.

4. In probability theories, events which can never occur together are classified as

   A. mutually exclusive events
   B. mutually exhaustive events
   C. independent events
   D. collectively exclusive events

5. A chart that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent is called a

   A. histogram
   B. pie chart
   C. bar chart
   D. line chart

6. Statistics is a group of methods we can use to collect, organize, summarize and analyze_____.

   A. group
   B. population
   C. distribution
   D. data

7. A graph of a cumulative frequency distribution is called

   A. histogram
   B. frequency polygon
   C. ogive
   D. None of the above

8. Sonia has 2 cm stick while Jenny and Zac have 5cm stick each. What is the mean of the length of their sticks?

   A. 3 cm
   B. 4 cm
   C. 5 cm
   D. 12 cm

9. A survey was done on female students' weight in a particular company and the result is shown below:

Weight (kg)	No. of employees
55 – 59	4
60 – 64	7
65 – 69	9
70 – 74	15
75 – 79	12
80 – 84	8

Calculate the variance.

A. 53.75
B. 7.33
C. 7.26
D. 52.78

10. For a symmetric distribution, the mode and median are

A. the same
B. always different
C. possible the same, possible different
D. larger than the mean

11. In a throw of a standard dice, what is the probability of getting number greater than 4?

A. $\frac{1}{3}$
B. $\frac{1}{6}$
C. $\frac{1}{2}$
D. $\frac{1}{4}$

12. Which of the following is NOT showing the sample?

A. The hours spent for 300 shoppers in a mall is recorded.
B. 100 students from a college is chosen randomly and their height is measured.
C. A random sample of 50 cars passed by an area is selected and their speed is recorded.
D. The midterm score for all 40 students in section BMI is recorded.

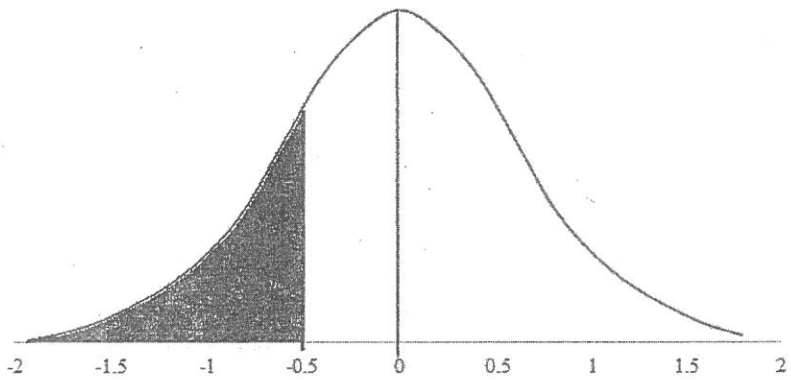
13. Which of the following shows qualitative variable?

A. Number of defective microchips.
B. The scents of shower gel.
C. Monthly salary for a company's staffs
D. Number of students who failed driving test.

14. If the variance of women's weight is 25^2 kg^2, what is the standard deviation for women's weight?

A. 5 kg
B. 25 kg
C. 50 kg
D. 625 kg

15. Find the area of the indicated region under the standard normal curve.



A. 0.1915
B. 0.6915
C. 0.3085
D. 0.8085

16. If two events are mutually exclusive, then:

A. they also must be complements
B. they also could be complements
C. the cannot be complements
D. None of the above

17. Suppose that vehicle speeds at an interstate location have a normal distribution with a mean of 105 km/h and a variance of 49 km/h. What is the z – score for a speed of 95 km/h?

A. 1.4286
B. -1.4286
C. -0.2041
D. 0.2041

18. Which statement is **FALSE** about confidence intervals?

A. An approximate formula for a 99% confidence interval is sample estimate $\pm$ margin of error
B. A confidence interval between 20% and 40% means that the population lies between 20% and 40%
C. A 95% confidence interval procedure has a higher probability of producing intervals that will include the population parameter than a 90% confidence interval procedure.
D. A confidence interval is an interval of values computed from sample data that is likely to include the true population value.

19. The test scores for a calculation test are normally distributed with a mean of 72.5 and a standard deviation of 14. Find the x – score that corresponds to a z – score of 0.7679.

A. 83.25
B. 83.5
C. 85.75
D. 61.75

20. A bag contains 16 balls of which x are blue, probability of getting a blue ball at random from this bag is

A. $\frac{x}{14}$
B. $\frac{1}{16}$
C. $\frac{16}{x}$
D. $\frac{x}{16}$

21. Which of the following is **NOT** a characteristic of a normal distribution?

A. It is a symmetrical distribution
B. It is a bell-shaped distribution
C. The area under the curve equals to one
D. The mean is always zero

22. $P(Z > -0.752)$, where Z is a standard normal random variable is closest to:

A. 0.7740
B. 0.2260
C. 0.2480
D. 0.5040

23. Which confidence level will have the widest confidence interval for a particular data set that includes 250 cases?

A. 90%
B. 95%
C. 99%
D. Not enough information to determine

24. What z – value is associated with 95% confidence interval?

A. 1.28
B. 1.645
C. 1.96
D. 2.575

25. A sample of 80 students was taken from the private university. These students spent an average of RM 250 on books each semester, with a standard deviation of RM 50. Which of the following could you say with 90% confidence was the average spent on books by these 80 students?

A. RM 250 $\pm$ RM 9.20
B. RM 250 $\pm$ RM 14.39
C. RM250 $\pm$ RM 10.96
D. RM250 $\pm$ RM 13.03

SECTION B (50 marks)

Instructions: This section consists of **THREE (3)** questions. Answer any **TWO (2)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) Explain the difference between discrete and continuous variables.

(2 marks)

Hence, indicate the following as discrete or continuous variables:

(i) the volume of milk produced by a cow.

(ii) the number of daily admissions to a general hospital.

(iii) the number of students who scored A in Statistics exam.

(iv) the time taken to complete 100m race.

(4 marks)

(b) The following table shows the classification on gender and whether or not eating breakfast on regular basis for 300 students in a school.

	Yes	No
Male	72	45
Female	103	80

A student is selected at random from one of these schools.

(i) Calculate the probability that the student does not eat breakfast on regular basis.

(2 marks)

(ii) Calculate the probability that the student is a male student or eats breakfast on a regular basis.

(3 marks)

(c) A standard die is tossed, determine the probability for the following events:

(i) Getting a number more than 6

(1 mark)

(ii) Getting an even number

(3 marks)

(d) The number of hours spent per week playing online games for ten students in INTI college is shown below:

21	25	30	20	14	19	25	32	25	16

Calculate the,

(i) mode (1 mark)

(ii) mean (2 marks)

(iii) median (3 marks)

(iv) sample standard deviation (4 marks)

(Total: 25 marks)

Question 2

(a) The events A and B are such that $P(A) = 0.34$ and $P(B) = 0.49$. Given that A and B are mutually exclusive events, find

(i) $P(A \cap B)$ (1 mark)

(ii) $P(A \cup B)'$ (3 marks)

(b) The operation manager of ABC production plant would like to estimate the mean amount of time a worker takes to assemble a new electronic component. After observing 150 workers, the manager noticed that their average time was 18.2 minutes. Assume that the population standard deviation of this assembly time is 3.8 minutes.

(i) Determine the point estimation of the population mean. (1 mark)

(ii) Construct a 99% confidence interval for the mean assembly time. (4 marks)

(c) Consider the following population of 9 data:

32	27	25	19	18	34	26	21	17

(i) Calculate the population mean

(2 marks)

(ii) A sample of 5 data from this population is selected, which are 32, 25, 28, 25 and 17. Calculate the sample mean and sampling error for this sample.

(3 marks)

(d) The table below shows a frequency distribution of the time taken by 50 students to complete a Statistic test, recorded to the nearest second.

Time (second)	Number of students
95 – 104	4
105 – 114	6
115 – 124	10
125 – 134	15
135 – 144	8
145 – 154	5
155 – 164	2

(i) Construct a cumulative frequency curve to present the above data.

(4 marks)

(ii) Estimate the median from the graph plotted in (i).

(2 marks)

(iii) Construct a histogram to present the above data.

(5 marks)

(Total: 25 marks)

Question 3

(a) A bowler's score for 6 games were 169, 193, 181, 174, 164 and 190. Using these data as sample, compute the following descriptive statistics.

(i) Range

(1 mark)

(ii) Variance

(3 marks)

(b) The weight (in grams) of a type of fruit when ripe is known to be normally distributed. Twelve pieces of such ripe fruits are plucked from a farm. The weights (in grams) of 12 pieces of fruits are as follow:

49.8	52.3	46.8	54.3	51.2	53.4
50.5	47.4	51.3	52.6	50.9	47.9

Assume that the population standard deviation to be 2.6 grams.

(i) Calculate the unbiased estimates of population mean weight of the fruits in the farm.

(2 marks)

(ii) Construct a 90% confidence interval for the mean population mean weight of the fruits in the farm.

(4 marks)

(c) The length of similar components produced by XYZ company are approximated by a normal distribution model with a mean of 9mm and a standard deviation of 0.12mm.

A component is chosen at random, calculate the probability that the length of this component is

(i) shorter than 9.15mm.

(3 marks)

(ii) shorter than 8.80mm.

(3 marks)

(iii) in between 8.75mm and 9.10mm.

(5 marks)

20 components are randomly selected.
Calculate the probability that the mean length of the components is more than 9.05mm.

(4 marks)

(Total: 25 marks)

-THE END-