UNIVERSITI MALAYSIA TERENGGANU

FINAL EXAMINATION

SEMESTER I SESSION 2025/2026 (BACHELOR DEGREE)

COURSE	:	**BUSINESS AND MANAGEMENT STATISTICS**
COURSE CODE	:	**MGM3033**
DURATION	:	**2 HOURS**

MATRIC NO.	:	_____
PROGRAMME	:	_____
SEAT NO.	:	_____

INSTRUCTIONS TO CANDIDATES

i. Answer **all** questions.

ii. All answers must be written in the answer booklet provided.

DO NOT OPEN THE QUESTION PAPER UNTIL INSTRUCTED

THIS QUESTION PAPER CONSISTS OF FOUR (4) PRINTED PAGES

(100 Marks)

Please answer all questions.

1. The social scientist is studying the attendance of college students at on-campus movies. A sample of 20 students showed they attended the following number of movies last semester.

   4, 4, 8, 6, 6, 8, 10, 4, 4, 7, 10, 6, 9, 2, 4, 6, 4, 6, 3, 6

   a. Calculate the **three (3)** statistics that measure central location. (10 marks)

   b. Analyse all answers in (a). (6 marks)

   c. Calculate the standard deviation for this data set. (9 marks)

2. Solve the below questions:

   a. With each purchase of a large pizza at Ricci's Pizza, the consumer receives a coupon that can be scratched to see if a prize will be awarded. The probability of winning a free soft drink is 0.10. and the probability of winning a free large pizza is 0.02. You plan to eat lunch tomorrow at Ricci's. Calculate the probability:

      i. that you will win either a large pizza or a soft drink (4 marks)?

      ii. that you will not win a price (4 marks)?

      iii. that you will not win a prize on three consecutive visits to Ricci's (5 marks)?

   b. The amount of time that university professors devote to their jobs per week is normally distributed with a mean of 50 hours and a standard deviation of 7 hours.

      i. Calculate the probability that a professor works for more than 65 hours per week. (4 marks)

      ii. Calculate the probability that the mean amount of work per week for three randomly selected professors is more than 65 hours. (4 marks)

      iii. Calculate the probability that if three professors are randomly selected, all three work for more than 65 hours per week. (4 marks)

3. Solve the following questions:

a. A random sample of 18 young adult men (20-30 years old) was sampled. Each person was asked how many minutes of sports they watched on television daily. The responses are listed below.

50	48	65	74	66	37	45	68	64
65	58	55	52	63	59	57	74	65

It is known that population standard deviation=10. Test to determine at 5% significance level whether there is enough statistical evidence to infer that the mean amount of television watched daily by all young adult men is greater than 50.
(10 Marks)

b. A plant manager of a company that manufactures office equipment is attempting to determine the process that will be used to assemble a new ergonomic chair. The material, machines, and workforce have already been decided. However, there are two methods under consideration. The methods differ by the order in which the separate operations are performed. To help decide which should be used, an experiment was performed. Twenty -five randomly selected workers each assembled the chair using method A and 25 workers each assembled the chair using method B.

Below is the information for these two-sample data:

	Method A	Method B
Sample mean	6.288	6.016
Sample Variance	0.848	1.303
Assumption	Equal population variances	

The plan manager would like to determine whether the assembly times of the two methods differ. A 5% significance level is judged to be appropriate. (15 Marks)

4. A medical laboratory at Duke University estimates the amount of protein in liver samples using regression analysis. A spectrometer emitting light shines through a substance containing the sample, and the amount of light absorbed is used to estimate the amount of protein in the sample. Six samples with known protein concentrations gave the absorbance reading shown below.

Absorbance reading (x)	**Milligrams in protein (y)**
0.509	0
0.756	20
1.020	40
1.400	80
1.570	100
1.790	127

a. Use these data to determine an estimated regression equation relating to the light absorbance reading to milligrams of protein present in the sample. (15 Marks)

b. Analyse the meaning of the slope and intercept in the context of the problem. (5 Marks)

c. In a sample just received, the light absorbance reading was 0.941. Calculate the amount of protein in the sample (5 Marks)

End of Question Paper