



No. of Pages - 06
No of Questions - 08

**SCHOOL OF ACCOUNTING AND BUSINESS
BSc. (APPLIED ACCOUNTING) GENERAL / SPECIAL DEGREE
PROGRAMME**

**YEAR I SEMESTER II – INTAKE VIII (GROUP A)
END SEMESTER EXAMINATION – JANUARY 2018**

QMT 10230 Business Statistics

Date : 26th January 2018
Time : 1.00 p.m. - 4.00 p.m.
Duration : Three (03) hours

Instructions to Candidates:

- Answer **Any Five (05)** questions.
- All questions carry equal marks.
- The total marks for the paper is 100.
- Use of scientific calculator is allowed.
- Answers should be written neatly and legibly

Question No. 01

Statistics is a scientific subject used for decision making in uncertainty situation.

- i. Describe this statement

(04 Marks)

- ii. Explain the approaches used in decision making

(04 Marks)

- iii. What is the difference between Descriptive and Inferential Statistics?

(04 Marks)

- iv. Why samples are important in management studies?

(04 Marks)

- v. How can you use Statistics in Business?

(04 Marks)

(Total 20 Marks)

Question No. 02

Number of Complaints made by customers in the last 30 days has been provided in the following frequency table.

No. of complaints	No. of days
10-19	04
20-29	08
30-39	10
40-49	05
50-59	02
60-69	01
	30

- Find the average number of complaints.
- What is the Mode number of complaints?
- Calculate the Variance and the Standard deviation of the number of complaints.
- Interpret the Skewness.
- Find the Coefficient of variance.

(Total 20 Marks)

Question No. 03

A company needs your help to identify the effect of Price and Consumers' Income on Demand. The following information is provided.

Year	Price	Income (in ten thousand)	Demand
1	10	6	50
2	9	7	60
3	10	5	40
4	7	9	70
5	8	10	70

- i. Construct a Multiple Regression Model to study the effect of price and income on demand.
(06 Marks)
 - ii. What will be the demand if the price is Rs.20 and income is Rs. 20, 000?
(02 Marks)
 - iii. Calculate coefficient of correlation between price and demand.
(05 Marks)
 - iv. Construct the regression ANOVA table and interpret the results
(07 Marks)
- (Total 20 Marks)**

Question No. 04

- i. Management of a company says that their productivity is 40 on average. Average Productivities of ten days are provided below. Test the statement of the management at 5% level of significance.

30	35	42	38	40	40	35	36	45	44
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(08 Marks)

- ii. Two companies produce the same product by using different process. Their productivities have been provided below. Test whether there is a significant difference between the productivities.

Process 1	50	52	51	49	48	52	47	49	49	50
Process 2	53	47	49	51	47	49	50	48	51	48

(12 Marks)

(Total 20 Marks)

Question No. 05

- i. It is expected to identify whether ERP system has an influence on productivities of companies or not. Ten companies have been selected and productivity has been calculated before and after the ERP system is introduced. The results of productivities are given below. Test whether there is a significant improvement on productivity due to ERP system.

Company	Pre results	Post results	Company	Pre results	Post results
1	18	22	11	14	15
2	21	25	12	16	15
3	16	17	13	16	18
4	22	24	14	19	26
5	19	16	15	18	18

(10 Marks)

- ii. A businessman needs to test whether there is a difference in customer's complaints with regard to three products. Five customers have been selected from each product group and the number of complaints has been recorded in the following table. Test whether there is significant difference between them.

Sample 1	sample 2	sample 3
2	3	5
3	4	5
1	3	5
3	5	3
1	0	2

(10 Marks)

(Total 20 Marks)

Question No. 06

- i. Describe Central Limit Theorem.
- (04 Marks)
- ii. What is meant by Degrees of Freedom?
- (04 Marks)
- iii. The number of items produced by employees within 30 hours has been provided below.
42,44,40,37,43,40,44,38,37,39,36,42,45,42,43,40,38,43,39,40,36,38,39,38,44,43,40,
36,44,39. Estimate the average number of working hours at 5% level of significance.
- (06 Marks)
- iv. Following information provides the data in relation to two brands of refrigerators produced by two companies.

Brands	A	B
Average operating hours	131200	122340
Standard deviation	3000	2500
Sample size	10	8

Estimate the difference of operating hours between the two brands at 95% confidence.

(06 Marks)

(Total 20 Marks)

Question No. 07

- i. What is meant by “Alternative hypothesis”?

(02 Marks)

- ii. Briefly describe the type of errors in hypothesis tests.

(02 Marks)

- iii. An electric bulb producer says that there is no difference in the life time of two brands of electric bulbs “O” and “P”. When two samples of size 50 from “O” and 40 from “P” are selected, the average lifetime of “O” is 610 hours and “P” is 630 hours. Standard deviations are 70 and 90 hours respectively. Test the statement of the producer at 95% level of confidence.

(05 Marks)

- iv. A sales agent says that there is no difference between the qualities of two brands of Video setups, “S” and “N”. When a sample size of 100 items from “S” is tested; the level of quality is 94%. Another sample size of 150 items from “N” is tested; the level of quality is 97%. Test the sales agent’s statement at 95% level of confidence.

(05 Marks)

- v. General Manager needs to test whether there is any impact from the educational qualification of the employees on the level of their performance. A study was carried out using two hundred employees and the results are provided by the following contingency table.

Level of education	Level of Performance			
	High	Moderate	Low	Totals
O/L	20	30	40	90
A/L	30	20	10	60
Graduate	40	05	05	50
Total	90	55	55	200

Test whether the level of education has an impact on level of performance.

(06 Marks)

(Total 20 Marks)

Question No. 08

In order to find the relationship between high work performance and the level of Work Life Balance (WLB), one hundred employees were interviewed. The following table shows the recorded information.

Level of WLB	High work performance		Total
	Yes	No	
Good	40	10	50
Moderate	16	14	30
Weak	08	12	20
	64	36	100

- i. What is the probability that an individual selected at random will be a good WLB?
(04 Marks)
- ii. What is the probability that an individual selected at random will be a good WLB and have high work performance?
(04 Marks)
- iii. What is the probability that an individual selected at random will be a good WLB or has high work performance?
(04 Marks)
- iv. What is the probability that an individual selected at random will be a good WLB if the individual is known to have high work performance?

(08 Marks)

(Total 20 Marks)