31,12.12.25



DIPLOMA IN PRODUCTION AND OPERATIONS MANAGEMENT

LEVEL 6 YEAR III EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATION

SITTING: NOVEMBER/DECEMBER 2025

SUBJECT: QUALITY MANAGEMENT

TIME: THREE (3) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. Write your examination number and national registration card number on the answer booklet provided. Ensure to append your signature in the space provided on the answer booklet.
2. Write your answer SCRIPT SERIAL NUMBER on the examination register provided and the entry slip.
3. There are Two (2) Sections in this paper. Sections A and B.
4. Section A consists of ten (10) multiple choice questions. Answer all questions.
5. In Section B, answer Question Two (2) which is compulsory and any other Three (3) Questions from the remaining Five (5).
6. Use pencils and graph papers (provided) for drawings and graphs.
7. Cell phones are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

SECTION A: MULTIPLE CHOICE; ATTEMPT ALL QUESTIONS AND EACH QUESTION CARRIES 2 MARKS

QUESTION 1

Write the letter of the correct answer in the answer booklet provided.

1.1 Who is known as the father of TQM (Total Quality Management)?
a) Edward Deming
b) Joseph Juran
c) Philip Crosby
d) Kaoru Ishikawa (2 marks)

1.2 Which of the following is false regarding quality leaders reviewing organizational performance?
a) They review organizational performance and also their own performance
b) They don't review organizational performance as they hate it
c) They don't review organizational performance as they don't have time for it
d) They review organizational performance but not their own performance. (2 marks)

1.3 Which of the following is a dimension of 'product quality'?
a) Probability
b) Machinability
c) Durability
d) Customer Satisfaction (2 marks)

1.4 Which of the following is not an element of customer service?
a) Customer care
b) Organization
c) Co-founder
d) Communication (2 marks)

1.5 Quality circle develops _____ awareness for safety.
a) Greater
b) Lesser
c) No
d) Diminishing (2 marks)

1.6 If the time taken to respond to customer complaints is less, which dimension of 'service quality' is strongly promoted?
a) Responsiveness
b) Aesthetics
c) Empathy
d) Durability (2 marks)

1.7 Which of the following is not a Quality Management Principle on the basis ISO 9000:2015?
a) Customer focus
b) Leadership
c) Customer dissatisfaction
d) Evidence based decision making (2 marks)

1.8 Michael bought a new washing machine which is not performing its primary function of washing clothes properly. What should the executive at customer care suggest to Michael?
a) To sell the washing machine
b) To buy a new washing machine
c) To assure the customer that a specialist will visit their house the following day
d) To lease the washing machine (2 marks)

1.9 Quality is fitness for use. Identify the quality guru who said this.
a) Deming
b) Crosby
c) Juran
d) Taguchi (2 marks)

1.10 Which one is the latest ISO 9001 version in the ISO 9000 family?
a) ISO 9001:1994
b) ISO 9001:2000
c) ISO 9001:2008
d) ISO 9001:2015 (2 marks)

Total (20 marks)

SECTION B: (80 MARKS)

QUESTION 2 IS COMPULSORY, ATTEMPT ANY OTHER THREE (3) QUESTIONS

QUESTION 2 (COMPULSORY)

a) Explain **Two (2)** classes of Benchmarking. (4 marks)

b) The results of 10 samples of size 8 of the internal diameter of steel tubings used in the construction of Walkways at John Laing footbridge are given in table below. The samples were taken every 1 hour from the factory floor.

Sample No	1	2	3	4	5	6	7	8	9	10
Size (mm)	4.23	4.29	4.19	4.24	4.20	4.31	4.19	4.25	4.27	4.25
	4.23	4.21	4.25	4.20	4.20	4.29	4.27	4.14	4.23	4.20
	4.20	4.17	4.18	4.19	4.21	4.19	4.16	4.23	4.25	4.21
	4.26	4.27	4.27	4.23	4.32	4.23	4.21	4.24	4.22	4.29
	4.29	4.20	4.20	4.19	4.17	4.19	4.14	4.25	4.27	4.18
	4.27	4.14	4.25	4.28	4.21	4.33	4.26	4.17	4.26	4.15
	4.28	4.24	4.22	4.08	4.13	4.26	4.30	4.16	4.28	4.29
	4.11	4.29	4.19	4.34	4.19	4.27	4.19	4.22	4.17	4.21

With the help of tables or constants wherever possible, plot the control charts as per American Practice. (16 marks)

Total (20 marks)

QUESTION 3

a) Given the following information, construct an Operating Characteristic curve for $n = 5$, $c = 2$; showing that the probability of accepting a lot with 2% defective product is 92% and the chance of accepting a lot of 24% defective product is 8%. (16 marks)

b) Explain **Two (2)** risks involved in (a) above. (4 marks)

Total (20 marks)

QUESTION 4

a) Describe with examples, **Three (3)** different types of costs of quality. (8 marks)

b) Explain **Six (6)** Principles of Total Quality Management (TQM). (12 marks)

Total (20 marks)

QUESTION 5

a) Identify **Two (2)** determinants of Quality. (4 marks)

b) Explain **Three (3)** different Quality meanings. (6 marks)

c) With the aid of the diagram, explain the concept of the Deming Wheel. (10 marks)

Total (20 marks)

QUESTION 6

a) With the aid of the diagram, explain the use of the Pareto diagram. (10 marks)

b) Explain the Principles of the Six Sigma technique. (10 marks)

Total (20 marks)

QUESTION 7

a) Describe **Four (4)** types of inspection. (8 marks)

b) Explain the following concepts of improving quality of the product or service:

i) Lean production. (4 marks)

ii) Total Quality Management. (4 marks)

c) Suppose the stock keeper takes a sample of 250 from the delivered lot which has 8% of the rejects. Determine the probability that the actual number of rejects will be 3. (4 marks)

Total (20 marks)