

Total No. of printed pages = 4

**BA 172402**

Roll No. of candidate 

--	--	--	--	--	--	--	--	--	--

**2020**

**M.B.A. 4<sup>th</sup> Semester End-Term Examination**

**QUALITY CONTROL AND MANAGEMENT**

**(New Regulation)**

Full Marks – 50

Time – Two hours

---

The figures in the margin indicate full marks  
for the questions.

Answer Question No. 1 and any *three* from the rest.

1. Answer the following (MCQ/ Fill in the blanks)  
(any *five*) : (5 × 1 = 5)
- (i) Process control is carried out :
- (a) Before production
  - (b) During production
  - (c) After production
  - (d) All of the above
- (ii) The control chart used for the fraction defective items in a sample is
- (a) Range chart      (b) Mean chart
  - (c) P-chart          (d) C-chart

**[Turn over**

- (iii) The process capability is calculated as
- (a)  $(USL-LSL)/3 \text{ sigma}$
  - (b)  $(USL+LSL)/3 \text{ sigma}$
  - (c)  $(USL-LSL)/6 \text{ sigma}$
  - (d)  $(USL+LSL)/6 \text{ sigma}$
- (iv) A six sigma process has defect level below \_\_\_\_\_ defects per million opportunities
- (a) 3.4
  - (b) 4.5
  - (c) 5.6
  - (d) 6.7
- (v) The Plan-Do-Check-Act(PDCA) model is also known as
- (a) Ishikawa
  - (b) Juran Cycle
  - (c) Motorola Cycle
  - (d) Shewart Cycle
- (vi) To identify the causes of poor transcription quality, one would likely use a
- (a) Fishbone diagram
  - (b) Flow chart
  - (c) Force field analysis
  - (d) Pareto chart
- (vii) The type of variation that is caused by factors outside a system is called
- (a) Common cause variation
  - (b) Input/output
  - (c) Processes
  - (d) Special cause variation
- (viii) Determining the effectiveness of a risk management program is known as risk
- (a) Analysis
  - (b) Control
  - (c) Evaluation
  - (d) Identification

- (ix) Determining what is the likelihood that a particular event or outcome will happen is risk  
 (a) Analysis (b) Control  
 (c) Evaluation (d) Identification
- (x) What technique is used to maximize the number of ideas for a problem analysis and solution?  
 (a) Affinity diagram  
 (b) Brainstorming  
 (c) Cause and effect diagram  
 (d) Pareto chart
2. (a) What do you mean by quality? Discuss the basic cost of poor quality. (3 + 4 = 7)  
 (b) Briefly discuss the basic concept of Total quality management. (8)
3. (a) Distinguish between assignable and common causes of variation. Why is this distinction important in quality control? (4 + 3 = 7)  
 (b) What is the meaning of Process capability ratio? Explain Cp and CpK. (4 + 4 = 8)
4. (a) Briefly discuss OC curve. (7)  
 (b) What do you mean by type I and Type II errors? (8)
5. (a) Below table provides the data of the number of defectives in 20 samples, each sample containing 2000 items. Construct a control chart for fraction defectives and interpret the results. (8)

No. of defectives	(Fraction defectives ( $p = d/n$ ))	No. of defectives	Fraction defectives( $p=d/n$ )
425	0.213	356	0.178
430	0.215	402	0.201

No. of defectives	(Fraction defectives (p = d/	No. of defectives(	Fraction defectives(p=d/
216	0.108	216	0.108
341	0.170	264	0.132
225	0.113	126	0.063
322	0.161	409	0.205
280	0.140	193	0.097
306	0.153	326	0.163
337	0.169	280	0.140
305	0.153	389	0.195

(b) Surface defects have been counted on 10 rectangular steel plates and the data are shown in table below. Draw the control chart for non-conformities using this table. (7)

Sheet Number	1	2	3	4	5	6	7	8	9	10
No. of defects	2	3	1	4	4	0	2	1	4	2

6. (a) What are the conditions required for using chain sampling plan? Explain. (7)

(b) Below table refers to data on visual defects found in the inspection of the first 10 samples of size 400. Use the data to obtain upper and lower control limits for percentage defectives in samples of size 400. Draw a suitable control chart. (8)

Table : Data showing number of non-conformities.

1	2	3	4	5	6	7	8	9	10
17	15	14	26	09	04	19	12	09	15

7. Briefly discuss any *three* from the following : (5 + 5 + 5 = 15)

- (a) Pareto Chart
- (b) Check sheet
- (c) Histogram
- (d) Ishikawa Diagram.