

[3 hours]

Total Marks: 80

Note :

- a) **Question No. 1 is compulsory**
- b) Attempt **any three** from the remaining six questions
- c) Assumptions should be made whenever required and should be clearly stated
- d) Answers to sub questions should be answered together
- e) Illustrate answers with diagrams wherever necessary

Q1	A	Explain Quality assurance and Quality characteristics	10
	B	Short note	10
		(1) Cost of Quality (COQ) system	
		(2) Bench Marking	
Q2	A	Draw OC curve and explain various risk associated with it.	10
	B	Explain Cause and effect diagram with proper case study.	10
Q3	A	Comment on : i) Autonomous maintenance ii) OEE as pillars of TPM	10
	B	Explain various statistical quality tools	10
Q4	A	Explain Taguchi's quality loss function and its advantages. How Taguchi's technique helps achieving Robust Design of a product?	10
	B	What is Six Sigma? Explain the concepts, feature and benefits of Six Sigma to an organization.	10
Q5	A	Write a short note on (any four)	20
	(a)	POKA-YOKE	
	(b)	Zero defect concept	
	(c)	5-S	
	(d)	OC Curves.	
	(e)	KAIZEN.	
	(f)	JIT	
Q6	A	Explain Failure Mode and Effect analysis (FMEA)	10
	B	Define 1) LTPD 2)AOQL 3) AQL 4) Producers Risks 5) Consumers Risk	10
Q7	A	Discuss X bar and R charts,p,np,c,u charts	10
	B	Define "Total Quality Management". Explain how TQM can be ensured.	10
