

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Which of the following is NOT concerned with scientific management?
Option A:	F. W. Taylor's
Option B:	Taguchi
Option C:	Gilbreth
Option D:	Gantt
2.	Value analysis technique comprises
Option A:	Development of new methods
Option B:	Measurement to complete a job
Option C:	Watching actions of body parts during service
Option D:	Reducing the cost of items and services
3.	Four key elements for developing agile manufacturing are
Option A:	Strategic planning, Product design, Virtual enterprise, Enterprise Resource Planning
Option B:	Strategic planning, Product design, Virtual enterprise, Automation and Information Technology
Option C:	Virtual enterprise, Product design, Value Analysis, Automation and Information Technology
Option D:	Automation and Information Technology, Strategic planning, Product design, Virtual enterprise, Digital Scanning
4.	In SIMO chart, the movements are recorded against time measured in _____.
Option A:	Minutes
Option B:	Seconds
Option C:	Micro seconds
Option D:	Winks
5.	Therblig is described by standard symbol and color in
Option A:	Macro-motion study
Option B:	Gantt chart
Option C:	Micro-motion study
Option D:	Curve chart
6.	Ergonomics is related to
Option A:	Value analysis
Option B:	Human engineering
Option C:	System analysis
Option D:	Management engineering
7.	Material handling equipment, roller/belt conveyor are used for the
Option A:	Continuous movement, and relatively short distance
Option B:	Interrupted movement, and relatively short distance
Option C:	Interrupted movement, and relatively large distance
Option D:	Continuous movement, and relatively large distance
8.	Group Technology implies the notion of recognizing and exploiting similarities in following different ways, EXCEPT
Option A:	by efficiently storing and retrieving the information about recurring problems
Option B:	By restraining the grouping of general-purpose machines

Option C:	by standardizing the similar tasks
Option D:	by performing the like activities together
9.	Tools and techniques of Lean Manufacturing are- I. Takt Time II. Cellular Manufacturing III. Supplier relation IV. Pull Systems and Kanban
Option A:	I, II, III
Option B:	II, III, IV
Option C:	I, II, IV
Option D:	I, III, IV
10.	Which of the following components is not included in the flexible manufacturing system?
Option A:	Processing Stations
Option B:	Material Handling and Storage System
Option C:	Auxiliary Equipment
Option D:	Value stream mapping

Q2	Solve any Two Questions out of Three 10 marks each
A	Define productivity. What are the factors influencing productivity of an enterprise? Explain with examples.
B	List various work measurement techniques and discuss anyone in detail.
C	What do you understand by Job Evaluation? What are its objectives? Explain Job Evaluation Process.

Q3	Solve any Two Questions out of Three 10 marks each
A	Delineate value engineering and Steps in the value engineering. Distinction between value engineering and value analysis.
B	A work sampling study was conducted for 100 hours in the machine shop in order to estimate the standard time. The total number of observations was 2500, No. of working activity could be noticed for 400 observations. The ratio between manual and machine elements was 2:1. average rating factor was estimated as 1.15 and total number of articles produced during the study period was 6000. Rest and personal allowances are 12% of the normal time. Estimate standard time to perform the operation. Answer:
C	What is facility location decision? Describe the factors which influence the location decisions while setting up an Electric car manufacturing company.

Q4	Solve any Two Questions out of Three 10 marks each
A	Describe ergonomics. Explain the importance of anatomy, physiology and psychology w.r.t ergonomic discipline
B	Define Material Handling System. What are the important principles of material handling?
C	Write short note: (Any Two) (i) Key elements for developing Agile Manufacturing (ii) Flexible Manufacturing (iii) Value Stream Mapping.