

17609

21415

3 Hours / 100 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) Attempt any THREE of the following: 12
- (i) Define productivity? State the factors which improves productivity.
 - (ii) Define:
 - 1) Routing
 - 2) Sequencing
 - 3) Scheduling
 - 4) Dispatching

P.T.O.

- (iii) Compare between various types of production systems with respect to
- 1) Product
 - 2) Layout
 - 3) Machines used
 - 4) Cost of product
- (iv) What is productivity index? State it with respect to labour, material and machine.
- b) **Attempt any ONE of the following:** **6**
- (i) Suggest and explain with neat sketch material handling device used in mass production.
 - (ii) Explain the concept of line balancing with example.
2. **Attempt any TWO of the following:** **16**
- a) (i) State the relaxation provided for backward areas to promote rapid industrial growth?
(ii) Explain any four factors that affect selection of site.
 - b) What is process planning? Explain the steps in process planning?
 - c) State the factors determine inspection stages. Differentiate between floor and centralized inspection.

- 3. Attempt any FOUR of the following:** **16**
- a) Explain the concept of AGV? State its any two applications.
 - b) State the advantages and disadvantages of combined operations.
 - c) Explain the importance of operation sheet. How it will help to improve process planning?
 - d) What is group technology? Give its applications.
 - e) What allowances are considered while calculating standard time?
 - f) State the principals of Jig and fixture design.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Describe 3 - 2 - 1 principal of location used in Jig and fixture with suitable sketches?
 - (ii) How '5S' can be used as inventory reduction technique?
 - (iii) What is end effectors? Give its classification.
 - (iv) What is concept of ERP? State its any two advantages.
- b) Attempt any ONE of the following:** **6**
- (i) If a worker takes 15 minutes as a standard time for a job in which total allowances is 20% of normal time, If the rating of worker is 100%. Find the actual time required by worker.
 - (ii) Illustrate how just in time manufacturing system is helpful to industry for reduction in inventory.

5. Attempt any FOUR of the following:**16**

- a) List the types of locators. State the functions of diamond pin locator with neat sketch.
- b) Explain the cycle of Kaizen activity.
- c) State the functions of drill bushes. State the advantages of renewable bush over other type bushes.
- d) What is non-contact sensors? State the applications of non-contact sensors.
- e) Suggest and explain the actuator used for discrete step mechanical movement in Robot?
- f) Describe cylindrical configuration robot with neat sketch. List any two its applications.

6. Attempt any TWO of the following:**16**

- a) What is degree of freedom in Robot? How six degree of freedom can obtained in Robot?
 - b) Explain with neat sketch Gantt chart. State its importance and application in production planning and control.
 - c) List the process charts used in data recording. State the importance of each chart with suitable example.
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