

**INDUSTRIAL AUTOMATION**  
**3K4-IEA-17**

Time : 3 hrs.

M.M : 100

**Note :—**

1. Part 'A' may be attempted in first 6 pages of Answer Sheet.  
भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छः पृष्ठों में ही करने हैं।
2. Part 'B' in rest of the Sheets of Answer Sheet.  
भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. Answers may be given in English or Hindi.  
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

**PART - 'A'****1. Attempt any ten questions : -****(10x2=20)**

- (a) What are social robots?
- (b) What is ladder logic?
- (c) Is Robotics an automation?
- (d) Why layout is required?
- (e) Why interfacing is done?
- (f) What is Range sensor?
- (g) What is Synchronous motor?
- (h) Define part programming.
- (i) What do you mean by FMS?
- (j) Which electric drive is needed for steel mills?
- (k) What are the essential requirements of good braking?
- (l) What is high level language?
- (m) Define CNC.
- (n) Define End-Effectors.

**2. Attempt any five questions :****(5x4=20)**

- (a) What is the difference between NC & CNC ?
- (b) Explain in brief robot part-programming methods?
- (c) Compare between PLC & PC.
- (d) Sketch & explain the feed back control system.

- (e) Draw the neat sketch of an industrial robot and show its parts.
- (f) Explain the concept of regenerative braking.
- (g) What are the methods do reduce energy loss during starting?
- (h) How do you select drive for the machine tool ?

### PART- B

Attempt any three questions.

(3x20=60)

- 3. (a) Explain about bit instructions used in PLC programming.  
(b) Draw and explain the PLC ladder diagram for Traffic light control.
  
- 4. (a) How CAD helps in interfacing with the system?  
(b) Explain in brief about intelligent robot and vision system.
  
- 5. (a) Explain the classification of Robots?  
(b) Explain in detail about speed control of D.C. Motor drives.
  
- 6. Explain one application of electric drives in each in :
  - (i) Steel Mill
  - (ii) Machine tool Industry.
  
- 7. (a) Explain the operation and purpose of the processor in a PLC.  
(b) Explain in the difference between volatile and non volatile memory.

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processor