

**INDUSTRIAL ELECTRONICS**  
**3K4-IEI-18**

M.M. : 100

Time : 3 hrs.

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

- (a) What are the different methods to turn on the thyristor?
- (b) What are the factors that influence the turn off time of a thyristor?
- (c) In which mode of TRIAC sensitivity of gate is high?
- (d) Define heat sink transfer coefficient.
- (e) Draw VI characteristics of a TRIAC.
- (f) Define CMRR.
- (g) Enlist some applications of WAN.
- (h) Define a transducer.
- (i) Draw single phase bridge rectifier circuit.
- (j) What is the difference between ON-OFF control and phase control?
- (k) What are the main classifications of inverters?
- (l) What is Meant by parallel commuted inverter?
- (m) What is the need of voltage regulators?
- (n) What is meant by operational Amplifier ?

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

- (a) Write the symbol and working principle of SCR.
- (b) Draw the V-I characteristics of LASCR and write any of its two application.
- (c) Explain the principle of induction heating.
- (d) What is the need for heat sink in thyristor?

- (e) What are the differences between instrumentation amplifier and OP-Amp.
- (f) Explain briefly the operation of basic inverter circuit.
- (g) What are the ideal characteristics of an OP-AMP ?
- (h) Draw the digital system architecture of LAN.

### PART- B

Attempt any three questions.

(3x20=60)

- 3. (a) Explain the switching characteristics of SCR.  
(b) Enlist and explain different methods to turn off thyristor.
- 4. (a) Explain how an UJT works as relaxation oscillator.  
(b) What is the need of an isolation amplifier ? Explain its working.
- 5. With the help of neat sketch & output waveforms, explain the working of three phase bridge rectifier and derive equation for output RMS voltage.
- 6. (a) Describe the operation of parallel inverter with the help of diagrams. What are the disadvantages of parallel inverters?  
(b) What are the advantages & disadvantages of TRIAC over SCR ?
- 7. Write short notes on the following
  - (a) Signal conditioner
  - (b) Linear Integrated circuit