

- (e) What is memory hierarchy ?
- (f) What is an Instruction Register ? Outline its layout.
- (g) What is the criteria for Interrupt Set selection ?
- (h) What is an IOP ? State its significance.

### UNIT - I

- 2. (a) What are state Diagrams ? How are these helpful ? Illustrate. 8
- (b) What are Excitation Tables ? How are these relevant ? Draw Excitation Table for RS and JK flip-flop. 8
- 3. Explain the following :
  - (a) Master Slave Flip-flop 8
  - (b) Clocked RS Flip-flop 8

### UNIT - II

- 4. (a) What is a Shift - Register ? Design a 4- bit shift register and outline the procedure for serial to parallel conversion and vice-versa. 8

- (b) What is Modulo- 6 counter ? How do you design it ? Illustrate. 8

### 5. Explain the following :

- (a) Asynchronous Binary Counter. 8
- (b) Binary-Down Counter. 8

### UNIT - III

- 6. (a) What are I/O device controllers ? How these work ? Illustrate their working . 8
- (b) What is ROM ? What are its types ? Where is it used ? Illustrate. 8
- 7. Explain the following :
  - (a) Flash Memory 8
  - (b) Optical Storage. 8

### UNIT - IV

- 8. (a) What is DMA techniques ? How is it different from Interrupt- driven I/O technique ? Illustrate their working . 8

B.Tech. 2nd Semester F-Scheme  
(Common for All Branches) Examination,

May-2019

PHYSICS-II

Paper-Phy-102-F

*Time allowed : 3 hours]*

*[Maximum marks : 100*

*Note : Question No. 1 is compulsory. Students have to attempt five questions in total selecting at least one question from each section. Each question carries equal marks.*

1. (i) How many atoms are there in the primitive cell of diamond ? 2
- (ii) Find  $d_{100}$ ,  $d_{110}$ ,  $d_{111}$  in a simple cubic lattice. 2
- (iii) An electron, neutron and a proton have the same de-Broglie wavelengths, which particle has greater velocity ? 2
- (iv) Calculate the energy of photon whose frequency is 1000K cycles/sec. 2
- (v) What are Fermions ? 2
- (vi) What is meant by Free energy ? 2
- (vii) State Block theorem. 2
- (viii) Explain effect of impurity on photoconductivity. 2