Reg. No. : | | | | | | | | | | |

Question Paper Code: 52005

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Second Semester

Computer Science Engineering

15UPH205 - SEMICONDUCTOR PHYSICS AND OPTO ELECTRONICS

(Common to ECE and IT)

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. What happens when a material is heated? CO1- R

   (a) It contracts (b) It melts (c) It expands (d) It bursts

2. Example of high resistivity material is _____ CO1- R

   (a) Copper (b) Gold (c) Aluminium (d) Carbon

3. What are the charge carriers in semiconductors? CO2- R

   (a) Electrons and holes (b) Electrons (c) Holes (d) Charges

4. What is the name of the continuous curve in the magnetic field, the tangent of which gives the direction of magnetic intensity? CO2- R

   (a) Magnetic lines of force (b) Magnetic lines of induction

   (c) Magnetic force (d) Magnetic dipole moment

5. Which of the following easily adapt itself to store electrical energy? CO3- R

   (a) Passive dielectric (b) Superconductor (c) Active dielectric (d) Polar molecules

6. The phenomena of super conductors was first discovered by ____ CO3- R

   (a) Kammerlingh Onnes (b) Neils bohr (c) Richard Smalley (d) Otto lehman

7. Compositional and structural differences between photonic and electronic devices _____ CO4- R

(a) provide high efficiency (b) provide low efficiency

(c) highly used (d) create problems

8. Optical interconnection between optoelectronic device is achieved in __ CO4- R

(a) Wavelength operator (b) Wavelength converter

(c) Replication technology (d) Chip-to-chip interconnection

9. Multimode step index fiber has _____ CO5- R

(a) Large core diameter & large numerical aperture

(b) Large core diameter and small numerical aperture

(c) Small core diameter and large numerical aperture

(d) Small core diameter & small numerical aperture

10. The fibers mostly not used nowadays for optical fiber communication system are _____ CO5- R

(a) Single mode fibre (b) Multimode step fibre

(c) Multimode graded fibre (d) Coaxial fibre

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.	Deduce the expressions for electrical and thermal conductivity.	CO1- U	(8)
12.	What is Hall Effect? Obtain expressions to find Hall coefficient and Hall voltage. Mention any two applications of Hall effect.	CO2- U	(8)
13.	Distinguish between soft and hard superconductors.	CO3- U	(8)
14.	What do you meant by modulation? Explain the pulse code modulation along with the required basic elements using the block diagram.	CO4- U	(8)
15	Illustrate the types of optical fibre cable.	CO5- U	(8)

52005