Code No. 20AP1BS02

R20

TEEGALA KRISHNA REDDY ENGINEERING COLLEGE
(UGC – AUTONOMOUS)
B TECH I Semester Examinations, July 2021
(ELECTRONICS AND COMMUNICATION ENGINEERING)
APPLIED PHYSICS
Answer any Five questions
All questions carry equal marks

Time : 3 Hours   Max. Marks : 75

1. a) Explain blackbody radiation spectra and hence derive plank's law of radiation 7
   b) Derive an expression for Schrodinger's time-independent wave equation starting from a wave function 8

2. a) Find the wave function of particle in 1-dimensional potential box. 7
   b) Explain how Davisson Germer experiment supports the wave-particle dualism? 8

3. a) Write a note on Hall-effect. 7
   b) Discuss reverse biased Zener diode and its V-I characteristics 8

4. a) Define avalanche breakdown and explain working of avalanche diode 7
   b) Discuss the effect of charge carriers and temperature on fermi level variation in case of p-type semiconductor. 8

5. a) Explain the construction and working of Bipolar Junction Transistor (BJT). 7
   b) Discuss the working of semiconductor LASER. 8

6. a) Explain the working principle of solar cells with suitable diagram. 7
   b) Discuss the construction and working of CO_2 laser. 8

7. a) Derive an expression for numerical aperture with diagram and arrive at the condition for propagation of light in an optical fiber. 7
   b) Classify optical fibers with suitable diagrams. 8

8. a) Discuss Maxwell's equations and their importance. 7
   b) Ferroelectric material is analogous to ferromagnetic material. Discuss 8

---------------------oooooooooooooooooo---------------------