R18 Regulation *Subject code: 2B2AF*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech II Semester Supplementary Examinations, October 2022

APPLIED PHYSICS– II

(Common to EEE,ECE,CSE & IT)

Maximum Marks: 70 Date:13.10.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

PART-A

Answer all the equations (10X2M = 20M)

1. Write the differences between Intrinsic and Extrinsic semiconductor.
2. What is meant by Hall effect?
3. What is the principle involved in semiconductor laser?
4. Write the characteristics of solar cell.
5. Write the Biot's –sawarts law.
6. State Faraday's laws.
7. Define polarizability.
8. What is meant by dielectric constant?
9. Write short notes on Meissner effect.
10. Write the applications of super conductivity.

PART-B

Answer all the equations (5X10M = 5M)

11. (a) Calculate the carrier concentration for n- type semiconductor. (7M)
    (b) Explain the Extrinsic semiconductor? (3M)

(OR)

12. (a) Compare the differences between forward bias and reverse bias. (5M)
    (b) Describe the V-I characteristics of p-n junction diode? (5M)

13. (a) What is LED? Mention its uses? (5M)
    (b) Explain how semiconductor laser works? (5M)

(OR)

14. (a) Describe any two types of photo diodes with their structure? (7M)
    (b) Write the merits of photodiodes. (3M)

15. (a) Explain the divergence of a static magnetic field? (3M)
    (b) Derive Maxwell's equations for vacuum and non-conducting medium? (7M)

(OR)

16. (a) What are the laws of electrostatics? (5M)

    (b) Explain electric current and the continuity equation. (5M)

17. (a) Define dielectric constant. (3M)

    (b) Derive the Clausius-Mossotti relation. (7M)

(OR)

18. Calculate the of polarizabilitites of ionic materials. (10M)

19. (a) Compare the properties of antiferro and ferri magnetic materials. (5M)

    (b) Differentiate soft and hard magnetic materials. (5M)

(OR)

20. (a) Define super conductivity and super conductors. (5M)

    (b) Differentiate type I and type II super conductors. (5M)