Regulation R18 *Subject code: 2P3BE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, July 2022

ELECTROMAGNETIC FIELDS

EEE

Maximum Marks: 70 *Date:29.07.2022* Duration: 3 hours

Part-A

All the following questions carry equal marks **(10x2M=20 Marks)**

1 What are the source of electric field.
2 State divergence theorem.
3 State coulombs law.
4 Define electric field intensity.
5 Define magnetic moment.
6 State Ampere circuital law.
7 Give the equation of transformer emf.
8 State Faraday's law of induction.
9 Define a Wave.
10 Define skin depth.

Part-B

Answer All the following questions. (5X10M=50Marks)

11 State and proof divergence theorem. [10]

OR

12 Explain the rectangular co-ordinate system with neat diagram. [10]
13 State and proof gauss law .and explain applications of gauss law. [10]

OR

14 Explain poissons and lapace's equations. [10]
15 Derive the expressions for magnetic field intensity due to finite and infinite line. [10]

OR

16 Derive the expressions for magnetic flux intensity due to solenoid of the coil. [10]
17 Derive an expression for self and mutual inductances. [10]

OR

18 Find the magnetic field density at appoint on the axis of a circular loop of a radius b that carries a current I. [10]
19 Derive General field relation for time varying electric and magnetic fields using Maxwell's' equations. [10]

OR

20 a) Derive Maxwell's fourth equation, $\nabla XE = -\partial \mathbf{B}/\partial t$. [5]
b) Explain statically and dynamically induced e.m.fs. [5]