BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)
II - B. Tech II-Semester Supplementary Examinations (BR23), Aug - 2025
ELECTROMAGNETIC WAVES AND TRANSMISSION LINES (ECE)

Time: 3 hours   Max. Marks: 70

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Write the secondary parameters of transmission lines	(2M)	CO1	L1
b)	Explain microstrip transmission lines	(2M)	CO1	L2
c)	Write the applications of smith charts	(2M)	CO2	L1
d)	Define VSWR and draw the waveform representation	(2M)	CO2	L1
e)	State Coulombs law and write the expression	(2M)	CO3	L1
f)	Differentiate isotropic and homogeneous dielectrics	(2M)	CO3	L2
g)	Explain magnetic flux density	(2M)	CO4	L2
h)	Write the maxwell equations for time invariant fields	(2M)	CO4	L1
i)	Define uniform plane form and draw the waveform.	(2M)	CO5	L1
j)	State and write the expression for Poynting theorem	(2M)	CO5	L1

PART–B (5X10 = 50M)

2a.	Explain primary and secondary constants and also write the expressions for secondary constant interns of primary.	5(M)	CO1	L2
b.	The constants per km of a certain cable are: R = 6.75ohms; L = 5.5mH; C = 0.00872 µfd and G = 0.4 µ mhos. Calculate the Characteristic impedance, attenuation constant and phase velocity when w = 5000 radians per second	5(M)		L3

(OR)

3a.	Derive the transmission line equations	5(M)	CO1	L2
b.	Explain lossless and distortable transmission lines	5(M)		L2

4a.	Explain "UHF Lines as Circuit Elements"	5(M)	CO2	L2
b.	Write short nots on single stub and double stub matching	5(M)		L1

(OR)

5a.	What is a Smith Chart? and explain the various applications of smith chart in Transmission line	5(M)	CO2	L2
b..	Explain Quarter wave and Half wave Transmission Line.	5(M)		L2

6a.	State and derive coulombs law in vector form	5(M)	CO3	L2

b.	Derive electric field intensity for line charge	5(M)		L2
	(OR)			
7a.	State and derive continuity equation	5(M)	CO3	L2
b.	State and explain gauss law & its applications	5(M)		L2
8a.	State and derive Biot-savart law	5(M)	CO4	L2
b.	Derive maxwell's two equations for magnetostatic fields	5(M)		L2
	(OR)			
9a.	Explain ampere's circuital law and applications	5(M)	CO4	L2
b.	Explain and derive the inconsistency of ampere's law	5(M)		L2
10a	State and derive total internal reflection and Brewster angle.	5(M)	CO5	L2
b.	What is characteristic impedance and derive the relation between E and H in lossless medium.	5(M)		L2
	(OR)			
11a	Derive the wave equations for perfect dielectric media	5(M)	CO5	L2
b.	Define polarization and explain the different polarizations	5(M)		L2

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