Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2012

Examination: Second Year Semester IV

Course Code and Course Name: ETC404 Wave Theory & Propagation

Time: 1 hour **Max. Marks: 50**

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Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	FEM is based on solutions of which equations?
Option A:	Electric and Magnetic
Option B:	Laplace and Poisson
Option C:	Maxwell
Option D:	Poynting Power
Q2.	In conductors, which two parameters are same?
Option A:	Wavelength and phase constant
Option B:	Phase and attenuation constant
Option C:	Attenuation constant and skin depth
Option D:	Skin depth and wavelength
Q3.	Which of the following cannot be computed using the Biot Savart law?
Option A:	Magnetic field intensity
Option B:	Magnetic flux density
Option C:	Electric field intensity
Option D:	Permeability
Q4.	The Coulomb law is an implication of which law?
Option A:	Ampere law
Option B:	Gauss law
Option C:	Biot Savart law
Option D:	Lenz law
Q5.	Identify the polarization of the wave given, Ex = Exo cos wt and Ey = Eyo sin wt. The phase difference is +90º.
Option A:	Left hand elliptically polarized
Option B:	Right hand circularly polarized
Option C:	Left hand circularly polarized
Option D:	Right hand elliptically polarized
Q6.	Which layer has the atmospheric conditions exactly opposite to that of standard atmosphere?
Option A:	Depression layer
Option B:	Regression layer
Option C:	Inversion layer
Option D:	Invasion layer

Q7.	An implication of the continuity equation of conductors is given by
Option A:	a) $J = \sigma E$
Option B:	b) $J = E/\sigma$
Option C:	c) $J = \sigma/E$
Option D:	d) $J = jwE\sigma$
Q8.	The lines of force are said to be
Option A:	Real
Option B:	Imaginary
Option C:	Drawn to trace the direction
Option D:	Not significant
Q9.	Uniform plane wave is
Option A:	longitudinal in nature
Option B:	transverse in nature
Option C:	neither transverse nor longitudinal
Option D:	x directed
Q10.	By which name/s is an ionospheric propagation, also known as?
Option A:	Sea wave propagation
Option B:	Ground wave propagation
Option C:	Sky wave propagation
Option D:	Wired propagation
Q11.	Band Matrix method is used for computational electromagnetics in which of the following technique?
Option A:	FDM
Option B:	MOM
Option C:	AM & FM
Option D:	FEM
Q12.	The electric flux density is the
Option A:	Product of permittivity and electric field intensity
Option B:	Product of number of flux lines and permittivity
Option C:	Product of permeability and electric field intensity
Option D:	Product of number of flux lines and permeability
Q13.	An electromagnetic field can exist if it satisfies
Option A:	Gauss's law
Option B:	Faraday's law
Option C:	Coulomb's law
Option D:	All Maxwell's equations
Q14.	The unit of attenuation constant is
Option A:	a) Decibel
Option B:	b) Bel
Option C:	c) Neper

Option D:	d) No unit
Q15.	Ground waves are most effective:
Option A:	Above 20MHz
Option B:	Below 2MHz
Option C:	Above 300MHz
Option D:	At microwave frequencies
Q16.	Find the force on a charge 2C in a field 1V/m.
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q17.	A given area is divided into triangular subsets to find excitation voltage in which technique?
Option A:	FDM
Option B:	FEM
Option C:	MOM
Option D:	ADPCM
Q18.	Find the capacitance when charge is 20 C has a voltage of 1.2V.
Option A:	32.67
Option B:	16.67
Option C:	6.67
Option D:	12.33
Q19.	Find the magnetic field of a finite current element with 2A current and height $1/2\pi$ is
Option A:	1
Option B:	2
Option C:	1/2
Option D:	1/4
Q20.	The best definition of polarisation is
Option A:	Orientation of dipoles in random direction
Option B:	Electric dipole moment per unit volume
Option C:	Orientation of dipole moments
Option D:	Change in polarity of every dipole
Q21.	Which of the following identities is always zero for static fields?
Option A:	Grad(Curl V)
Option B:	Curl(Div V)
Option C:	Div(Grad V)
Option D:	Curl(Grad V)
Q22.	The value of $\int$ H.dL will be
Option A:	J

Option B:	I
Option C:	B
Option D:	H
Q23.	Calculate the wavelength of the wave with phase constant of 3.14 units.
Option A:	1
Option B:	2
Option C:	0.5
Option D:	4
Q24.	Electric flux density in electric field is referred to as
Option A:	Number of flux lines
Option B:	Ratio of flux lines crossing a surface and the surface area
Option C:	Direction of flux at a point
Option D:	Flux lines per unit area
Q25.	A boundary of separation between two magnetic materials is identified by which factor?
Option A:	Change in the permeability
Option B:	Change in permittivity
Option C:	Change in magnetization
Option D:	Conduction