



Scheme of Valuation/Answer Key (Scheme of evaluation (marks in brackets) and answers of problems/key)		
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY SIXTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019		
Course Code: EE302		
Course Name: ELECTROMAGNETICS		
Max. Marks: 100		Duration: 3 Hours
PART A		
<i>Answer all questions, each carries 5 marks.</i>		Marks
1	Since the question has a slight printing mistake, students who have written down the equation can be awarded 3 marks, and 2 marks for the steps if they have attempted	(5)
2	Explanation- 5 marks	(5)
3	Statement – 2 marks, Equation – 2 marks, figure– 1 mark	(5)
4	Statement and derivation – 3 marks, final expression – differential form – 1 mark, integral form – 1 mark,	(5)
5	explanation– 3 marks, equation– 2 marks	(5)
6	Statement – 1 mark, derivation – 3 marks, final expression – 1 mark	(5)
7	Calculation – 3 marks, Attenuation constant – 0.0554 Np/m(1 mark), Phase Constant – 317.84 rad/m (1 mark)	(5)
8	Electromagnetic interference definition – 3 marks, causes – 2 marks.	(5)
PART B		
<i>Answer any two full questions, each carries 10 marks.</i>		
9	a) Statement – 2 marks, mathematical expression – 1 mark, proof – 2 marks	(5)
	b) Curl definition and mathematical expression – 3 marks, physical significance – 2 marks.	(5)
10	a) Statement – 2 marks, figure – 1 mark, proof – 2 marks	(5)
	b) Infinite line charge distribution – 5 marks	(5)
11	a) Electric potential – 2.5 marks, potential gradient – 2.5 marks	(5)
	b) Figure – 1 mark, explanation – 2 marks, parameters- 1 mark, limits of parameters – 1 mark	(5)
PART C		
<i>Answer any two full questions, each carries 10 marks.</i>		

12	a)	Figure – 1 mark, application of Biot Savart Law- derivation – 5 marks, final equation – 1 mark,	(7)
	b)	Definition – 2 marks, equation – 1 mark	(3)
13	a)	Statement and equation– 3 marks, application – 2 marks,	(5)
	b)	Derivation – 3 marks, figure- 1 mark, final answer– 1 mark	(5)
14	a)	Derivation of general expression for energy – 4 marks, derivation of expression for energy in terms of electric flux density – 3 marks	(7)
	b)	Explanation – 2 marks, classification and types – 1 marks	(3)
PART D			
<i>Answer any two full questions, each carries 10 marks.</i>			
15		Poynting theorem and Poynting vector- 6 marks, derivation of average power density – 4 marks	(10)
16	a)	Frequency – 10GHz – 2.5 marks, conductivity – 1.6×10^5 S/m—2.5 marks	(5)
	b)	EM wave – explanation 2 marks, figure – 1mark, uniform plane waves – 2 marks	(5)
17		Figure with markings(model of transmission line) – 2 mark, derivation with final answer – 8 marks	(10)
