Seat No:_____ Enrollment No:_____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc., Winter 2019-20 Examination

Semester: 1 **Date: 04/12/2019**
Subject Code: 11204103 **Time: 10:30am to 01:00pm**
Subject Name: Electrodynamics and Programming in 'C' **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Answer the following in detail. **(08)**
(a) Derive the expression for retarded potential in case of oscillating magnetic dipole.
(b) Derive the expression for Lienard-Wiechart scalar potential.

Q.1. B) Answer the following questions (Any two)
(a) Do as directed. **(04)**
1. Define radiation reaction and write the Abraham-Lorentz formula.
2. What is "pre-acceleration acausality"? Also write Abraham-Lorentz equation of motion.
(b) Explain power radiated by a point charge with the help of an example. **(04)**
(c) Derive the expression for fields of moving point charges. **(04)**

Q.2. A) Answer the following questions.
(a) Do as directed. **(04)**
1. Explain the reason behind redness of the sky during twilight time, with the help of dipole radiation theory.
2. Why does electric dipole radiation dominate in waves? Elaborate briefly.
(b) Derive the expression for retarded potential in case of oscillating electric dipole. **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Answer the following in short. **(03)**
1. Write the expression for Poynting's vector.
2. What does a Poynting vector indicate?
3. Do the static sources radiate?
(b) Derive the expression for Lienard-Wiechart vector potential. **(03)**
(c) Obtain the Larmor formula for radiation due to point charge. **(03)**

Q.3. A) Answer the following in detail. **(08)**
(a) Write a note on one dimensional arrays.
(b) Write a note on declaration and initialization of arrays

Q.3. B) Answer the following questions (Any two)
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) **(04)**
1. Write any two examples of Decision making with if statements.
2. Define else if ladder.
(b) Write any one program with Do Statement in C programming. **(04)**
(c) Explain switch statement with example. **(04)**

Q.4. A) Answer the following questions.
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) **(04)**
1. Write short note on string handling functions.
2. What do you mean by copying and finding length of strings?
(b) Explain string classes. **(04)**

Q.4. B) Answer the following in detail.
(a) Short note/ Multiple choice questions. (Each of 01 marks) **(03)**
1. Write any one Need for user defined functions.
2. Define calling a function.
3. Write the full form of ANSI.
(b) Write a note on reading and writing strings. **(03)**
(c) Write a program for swapping two numbers. **(03)**