Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc.Winter2018-19 Examination

Semester: 1 **Date: 05/12/2018**
Subject Code: 11204103 **Time: 10:30 am 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 program to find factorial of any number.
(b)Write a program to print 1 to 100.

Q.3. B) Answer the following questions (Any two)
(a) Short note **(04)**
1.Explain global and local variable.
2.Write a program using all binary operators.
(b) Write a program on nested if. **(04)**
(c) Write a program half pyramid. **(04)**

Q.4. A) Answer the following questions.
(a) Answer the following **(04)**
1.Write expression for conditional operator and write the program on it.
2.Define array and write a program on it.
(b) Write a program to find solution of quadratic equation. **(04)**

Q.4. B) Answer the following in detail.
(a) Write expression for the following **(03)**
1. While
2. Do while
3. For loop
(b) Write a program to find out prime number between 1 to100. **(03)**
(c) Write a program using break and continue statement. **(03)**