PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(Third Semester)

Branch - **PHYSICS**

ELECTRICITY & MAGNETISM

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
*   Answer **ALL** questions
ALL questions carry **EQUAL** marks   (1 0 x 2 = 20)

1   Define the term 'Dielectric constant'.
2   Give Laplace's equation and Poisson's equation.
3   Deduce equation of continuity.
4   State Kirchoff s First law.
5   State Peltier effect.
6   What do you mean by transport number?
7   Define the term 'power factor'.
8   What is meant by average and RMS valueof alternating current?
9   Define the term'Magnetic susceptibility'.
10   What are paramagnetic materials?

SECTION - B (25 Marks)
.   Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Deduce the expression for the differential from of Gauss's law of electrostatics.
                              OR
    b Define the term 'Electric potential'. Derive an expression for potential as
        the line integral of electric field.

12 a   Give the principle of potentiometer? Discuss its uses.
        ;   OR
    . b Discuss about Drude. Lerentz theory of electrical conduction.

13 a State and explain seeback effect.
                              OR
    b State and explain laws of thermoelectricity.

14 a Distinguish between series and parallel resonant circuits.
        t   OR
    b With appropriate circuit diagram, describe the determination of high
        resistance by leakage method.

15 a State and prove Ampere's circuital law.
                              OR
    b Discuss about Langevin theory of diamagnetion.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16   State and explain Gauss's law of electrostatics.

17   State and explain Thevenin's theorem.

18   State Faraday's laws of electrolysis. Explain in detail an experimental
        determination of ionic mobilities.

19   Obtain an expression growth and the decay of current in RL circuit.

20   What are ferromagnetic materials? Explain in detail the domain theory of