Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Electricity and Magnetism

Subject Code: 4SC03ELM1 Branch: B.Sc. (All)

Semester: 3 Date: 04/04/2018 Time: 02:30 To 05:30 Marks: 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Attempt the following questions: (14)

a) How many electrons are in 1μC charge?
b) What is the unit of linear charge density?
c) Define the term hysteresis.
d) What is unit of electric flux?
e) What is the unit of permittivity?
f) Define the term electric dipole
g) What is the relation between capacity C, potential V and Charge Q.?
h) Differentiate between electric and magnetic flux?
i) The amount of work done in charging store by conductor, in which form?
j) What is the unit of magnetic pole strength?
k) Electromagnets are manufactured by using soft iron, Why?
l) Give the example of diamagnetic materials.
m Explain the term "polarization".
n) What is isotropic medium?

Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions (14)

A Obtain relation between potential difference and electric field intensity **7**
B Find the potential of charged sphere at outside the sphere. **7**

Q-3 Attempt all questions (14)

A State and prove the Gauss theorem. **7**
B Describe Hall effect. **7**

Q-4 Attempt all questions (14)

A Explain the magnetic field due to current carrying conductor. **7**
B Describe magnetic field due to a solenoid. **7**

Q-5 Attempt all questions (14)

	A	State Biot-Savart's law and using it find B for a current carrying straight conductor	**7**
	B	Compare the properties of Para and Dia magnetic materials	**7**
Q-6		**Attempt all questions**	**(14)**
	A	Explain in detail Ferro magnetic materials	**7**
	B	Explain energy loss due to hysteresis.	**7**
Q-7		**Attempt all questions**	**(14)**
	A	Write and explain the Equation of continuity of current.	**7**
	B	Explain transverse nature of Electromagnetic waves.	**7**
Q-8		**Attempt all questions**	**(14)**
	A	Explain the term Poynting's Vector in detail	**7**
	B	Explain the energy density in electromagnetic field.	**3**
		Explain the Maxwell equation briefly.	**4**