

## V40/A27032/EE/20160520

Time : 3 Hours

Marks : 80

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### Instruction :

1. All Questions are Compulsory.
  2. Each Sub-question carry 5 marks.
  3. Each Sub-question should be answered between 75 to 100 words. Write every questions answer on separate page.
  4. Question paper of 80 Marks, it will be converted in to your programme structure marks.
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1. Solve any **four** sub-questions.
  - a) What are Capacitors? Find the expression for energy stored in a capacitor. 5
  - b) State and explain Ohm's law. Explain V-I characteristics of it. 5
  - c) What is electrical energy and power expression for it? 5
  - d) State Gauss's theorem in brief. 5
  - e) What are magnetic lines of force? 5
2. Solve any **four** sub-questions.
  - a) State Ampere's law. 5
  - b) If four resistances  $5 \Omega$ ,  $10 \Omega$ ,  $15 \Omega$  and an unknown  $x \Omega$  are connected so as to form Wheatstone's network. Determine unknown resistance  $x$ . 5
  - c) Discuss electromagnets. 5
  - d) How are permanent magnets prepared? 5
  - e) Define charge. 5
3. Solve any **four** sub-questions.
  - a) State the principle of charge conservation. 5
  - b) Discuss the application of Ampere's Law to an infinitely long straight wire. 5
  - c) What is an Electric field? Answer with the proper unit. 5
  - d) Define electrical field lines with any three properties. 5
  - e) State Coulomb's Law in brief. 5

4. Solve any **four** sub-questions.
- a) Explain in brief para-dia-ferromagnetic substances. 5
  - b) Assign oxidation number to chlorine in the following species  
Cl,  $\text{ClO}_3^-$ ,  $\text{Cl}_2\text{O}_7$  5
  - c) Define oxidant and reductant. 5
  - d) Explain the effect of change in concentration and change in pressure on chemical equilibrium. 5
  - e) Define physical equilibrium. 5

