

# 1043

Code : E-04

Register Number 

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I Semester Diploma Examination, April/May-2015

## ENGINEERING BASICS

Time : 1½ Hours ]

[ Max. Marks : 50

- Note :** (i) Section – I is compulsory.  
(ii) Answer any **one** full question from each of the remaining Sections II, III & IV.

### SECTION - I

1. Fill in the blanks : 5 × 1 = 5
- (i) The unit of current is \_\_\_\_\_.
  - (ii) Rubber is an \_\_\_\_\_ material.
  - (iii) Self induced e.m.f. always \_\_\_\_\_ the applied voltage.
  - (iv) A d.c. motor converts \_\_\_\_\_ energy to \_\_\_\_\_ energy.
  - (v) SCR is a \_\_\_\_\_ terminal semi-conductor device.

### SECTION - II

2. (a) What are the advantages of electrical energy over other forms of energy ? 6  
(b) List the application of electrical energy. 5  
(c) Define electric power and mention its unit. 4
3. (a) Define the following and mention their unit : 6  
(i) Electric current  
(ii) E.M.F.  
(iii) Resistance
- (b) State Ohm's Law and mention its 3 equations. 5
- (c) Three resistance of 4 Ω, 6 Ω and 12 Ω are connected in series across a d.c. supply of 24 V. Find current through the circuit. 4

[Turn over

**SECTION - III**

4. (a) Define :
- (i) MMF
  - (ii) Reluctance
  - (iii) Magnetic flux **6**
- (b) Explain with diagram types of D.C. Motors. **6**
- (c) What is capacitance and its unit ? **3**
5. (a) Explain the term :
- (i) RMS value
  - (ii) Form factor
  - (iii) Frequency **6**
- (b) Explain the operation of 3  $\phi$  induction motor. **4**
- (c) List the types of single phase induction motor. **5**

**SECTION - IV**

6. (a) Explain the working principle of semi-conductor diode. **6**
- (b) List the application of SCR. **4**
- (c) List the application of PN junction diodes. **5**
7. (a) Compare microprocessor with microcontroller. **6**
- (b) List the application of microprocessor. **4**
- (c) List commercially available microcontrollers with applications. **5**
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