Roll No. .....

# 24007

## B. Tech. 2nd Semester (Common for all Branches) Examination – May, 2017

### ELECTRICAL TECHNOLOGY

**Paper : EE-101-F**

*Time : Three Hours ]* *[ Maximum Marks : 100*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

***Note :*** (i) Attempt ***five*** questions in total.

(ii) Question No. 1 is ***compulsory***.

(iii) Attempt ***four*** more questions from remaining ***four*** Sections (***B, C, D*** & ***E***) by selecting at least ***one*** question from each Section.

### SECTION – A

**1.** (a) Describe how the direction of induced e. m. f. can be determined. 5



### CTION – D

**6.** Define voltage ation. Derive the equation for voltage regulat f 1-ϕ transformer at inductive load. 20

**7.** Derive the equ for power in 3-ϕ star connected system. 20

### CTION – E

**8.** Draw and expl e constructional features of 3-ϕ induction moto 20

**9.** Explain the co tion and working principle of electrodynamor ype Wattmeter. 20

(b) Define :

(i) periodic fu ı

(ii) cycle

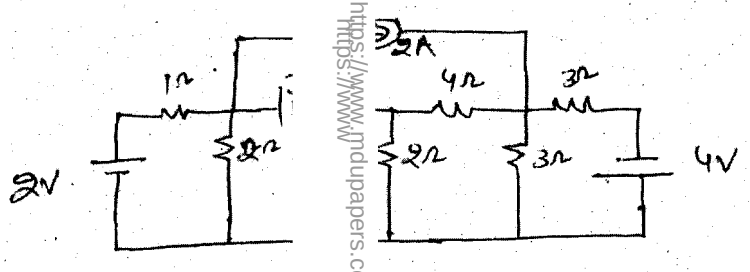
(iii) time perio sinusoidal signal 5

(c) Derive e.m.f. e n of 1-ϕ transformer. 5

(d) Derive e.m.f. e n of D. C. generator. 5

S ON – B

**2.** Solve the circuit giv low by using Nodal analysis :

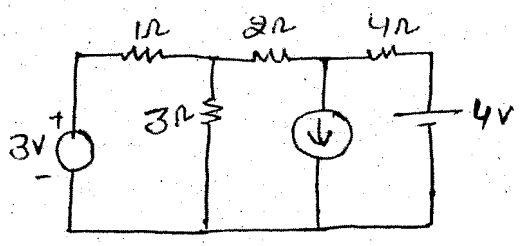



and find the valu current flowing through 4Ω resistance. 20





**3.** State and explain super position theorem. Find the value of current flowing through 3Ω resistance in the given circuit by using Norton's theorem : 20




## SECTION – C

**4.** A 10Ω resistor is connected in series with a 100 μF capacitor to a 230 V, 50 Hz supply. Find : 20

(a) Impedance

(b) Current

(c) Power factor

(d) Phase angle

(e) voltage across the resistor and capacitor

**5.** State and explain Resonance in RLC series circuit. Differentiate between Acceptor and Rejector circuits. 20