BRAINWARE UNIVERSITY

Term End Examination 2018 - 19

Programme – Diploma in Computer Science Engineering / Diploma in Electronics Engineering

Course Name – Electrical Engineering

Course Code – DECE206/DCSE206

(Semester – II)

Time allotted: 3 Hours **Full Marks: 70**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question) 10 x 1 = 10

1. *Choose the correct alternative from the following*

(i) KVL can be applied at

a. Loop
b. Node
c. Both loop and node
d. Neither loop nor node

(ii) Unit of inductance is

a. Mho
b. Ohm
c. Farad
d. Henry

(iii) What is the correct formula for inductive reactance

a. ωL
b. $1/\omega L$
c. 0
d. None of these

(iv) An ideal transformer is one which

a. Has same number of primary and secondary turns
b. Has no losses and leakage reactance
c. Does not work
d. None of these

(v) What is the unit of magnetic flux density

a. Weber
b. Tesla
c. Weber/m
d. Weber^{-1}

(vi) The form factor of a sinusoidal wave is

a. 1.11
b. 1.414
c. 2
d. 1.5

(vii) Initially the generated voltage in DC generator is

a. DC b. AC

c. Any one of these d. None of these

(viii) What is the unit of energy

a. Volt b. Ampere

c. Watt d. Watt-Hour

(ix) Which instrument is used to measure energy consumed

a. Potentiometer b. Wattmeter

c. Energy meter d. None of these

(x) Full form of MCB

a. Miniature Circuit Breaker b. Mini Circuit Breaker

c. Minimum Current Breaker d. Maximum Current Breaker

Group – B

(Short Answer Type Questions) 3 x 5 = 15

Answer any *three* from the following

2. A resistive star network into delta network is given. Convert the network into its equivalent delta network. 5

3. What are the various powers in AC circuit? Explain their relation. 5

4. What do you understand by Eddy Current? Explain eddy current loss. 5

5. Explain the various parts of a transformer? 5

6. What are the various types of electric wiring used for domestic purpose? 5

Group – C

(Long Answer Type Questions) 3 x 15 = 45

Answer any *three* from the following

7. (a) Explain the working principle of a transformer. 6

(b) Explain the various parts of a practical DC machine with diagram. 9

8. (a) Derive the expression of current, power, impedance and power factor when voltage $v = V_m \sin \omega t$ is applied to a RL circuit. 7

(b) An ac circuit consists of pure resistance of 10 Ω and is connected across an ac supply of 230V, 50Hz. Calculate current; power consumed and equation for voltage and current. 8

9.	(a)	Explain the Fleming's left hand and right hand rule.	7
	(b)	A straight wire 0.5m long carries a current of 100A and lies at right angles to a uniform magnetic field of 1.5T. Find the mechanical force on the conductor when (i) it lies in the given position. (ii) It lies in a position such that it is inclined at an angle of 30^0 to be direction of field. (iii) Power required moving the conductor at a speed of 10m/s for both the cases.	8
10.	(a)	What do you understand by inductance of a coil?	2
	(b)	What are the various parameters on which inductance of a conductor depend?	5
	(c)	What will be the current through the circuit when three resistances 3Ω, 12Ω and 15Ω are connected in series and 60V is applied to the circuit? What will be the current when the resistances are connected in parallel and the other circuit conditions remains same?	8
11.		Write short note on **any three :**	3x5
	(a)	Earthing and its importance	
	(b)	MCB	
	(c)	Average and RMS value of a sinusoidal quantity	
	(d)	Form factor and peak factor	
	(e)	Power triangle	
