



C16-AEI-106

6013

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2018

DAEI—FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State junction and loop.
2. Define ideal voltage source.
3. Define the terms phase and phase difference.
4. List any three differences between series and parallel resonance.
5. Define Q-factor of series *R-L-C* circuit.
6. Define Joule's law of electric current.
7. Mention any three practical applications of heating effect of electric current.
8. State the losses present in a transformer.

* 9. List out cooling methods of transformer.

10. Define armature reaction.

PART—B

10×5=50

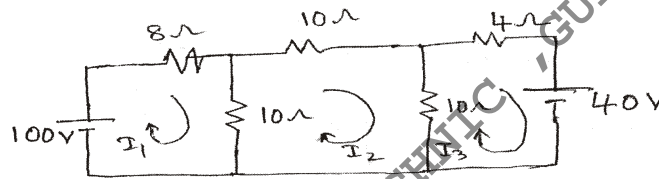
Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

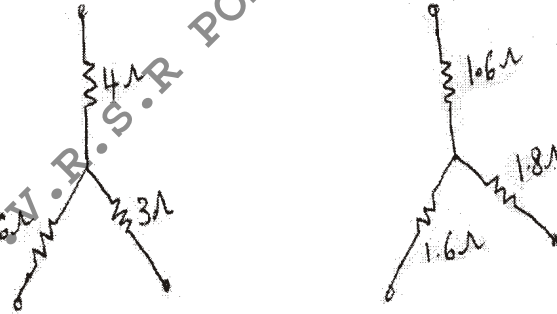
11. Find the currents in below circuit i_1, i_2, i_3 by using mesh analysis :

10



12. Convert the below star circuit into delta :

5+5



* 13. Define the relationship between voltage and current in pure inductive circuit fed with a.c. supply. Draw phasor diagram and waveforms.

10

14. A resistor of 25 Ω is connected in series with 50 μ F capacitor across 150 V, 50 Hz supply. Find impedance, current, phase angle, power factor and power consumed in the above R-C circuit.

10

- * 15. With neat sketch, explain working of electric kettle. 10
16. (a) Derive the e.m.f. equation of a transformer. 5
- (b) A single-phase transformer has 400 turns on primary winding. It is operating at 50 Hz supply with a maximum flux of 0.045 Wb. Find primary induced e.m.f. 5
17. (a) Explain the working principle of autotransformer and its advantages. 7
- (b) State voltage regulation of a transformer. 3
18. Explain the construction of a d.c. generator with neat sketch. 10

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