

6013
BOARD DIPLOMA EXAMINATION
JUNE - 2019

* **DIPLOMA IN APPLIED ELECTRONICS AND INSTRUMENTATION**
BASIC ELECTRICAL ENGINEERING
FIRST YEAR EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A (3m x 10 = 30m)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

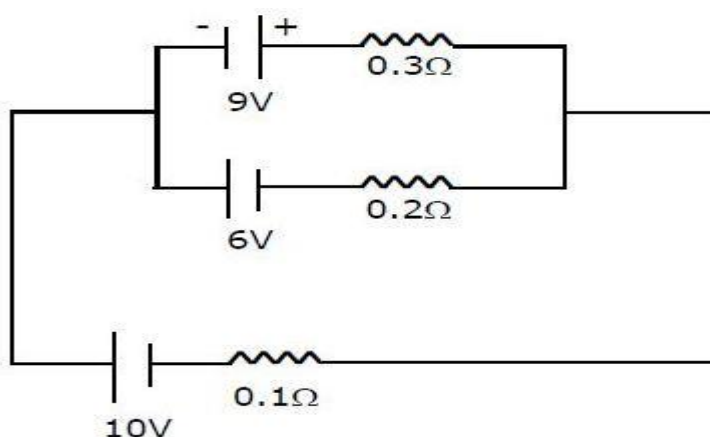
1. Differentiate between active and passive circuits
2. Define a) loop b) Branch of a circuit
3. Draw the waveform of pure resistive circuit and write value of power factor.
4. State the formula for impedance and power factor at resonance in series resonance
5. State the formula for impedance and current in series R-L-C circuits
6. List any three appliances works on the principle of heating effect of Electrical current
7. Define thermal efficiency
8. State the need of laminations in the transformer core
9. List the specifications of transformers
10. Write the EMF equation of DC generator and mention each term.

PART - B (10m x 5 = 50m)

Note 1: Answer any five questions and each carries 10 marks

2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. In the network shown below find the currents in each branch.



12. a) State and explain Kirchoff Law's
b) State and explain Thevenin's theorem
13. Derive an expression for resonant frequency in parallel R-L-C- circuit and draw the resonance curves
14. An a.c circuit consists of a coil with resistance of 30Ω and inductance of 0.1H is connected in parallel with a capacitor $100\mu\text{F}$ which is in series with a 20Ω resistance. If the combination is connected across 240V , 50Hz supply. Calculate (i) Total current (ii) power factor (iii) power consumed by using admittance method
15. Explain the working of electric cooker with diagram
16. Explain the working of current transformer and voltage transformer with diagram
17. A single phase $600/230\text{ V}$, 50 Hz transformer has a core area of 400 cm^2 and a maximum flux density of 1.18wb/m^2 , calculate the number of turns in primary and secondary windings
18. Calculate the efficiency of a 200V , 100 KW shunt generator if the resistance of the armature and shunt respectively are 0.005Ω and 20 W The friction, windage and iron losses together amount 3000w

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