6246
BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN MECHANICAL ENGINEERING
BASIC ELECTRICAL ENGINEERING & ELECTRONICS
THIRD SEMESTER 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. Define Capacitance and state the factors on which the capacitance of a capacitor depends

2. 1. Write the units of the following
        a) Electric Current   b) EMF   c) Resistance

3. Draw the Connection Diagram of a Welding Generator and Label the parts

4. State the working principle of a D.C Generator

5. State the working principle of a Transformer

6. Write the equations for Impedance , Power and Power Factor in case of R-C Series circuit

7. Draw the circuit diagram for Capacitor Start and Run Induction Motor

8. Compare P-type and N-Type semiconductors

9. Draw a neat sketch of Dynamometer type Watt-meter and label the parts

10. State the different types of Burns due to electric shock

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

Note 1:Answer any five questions and each question 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.   Calculate the current in each branch of the circuit shown below
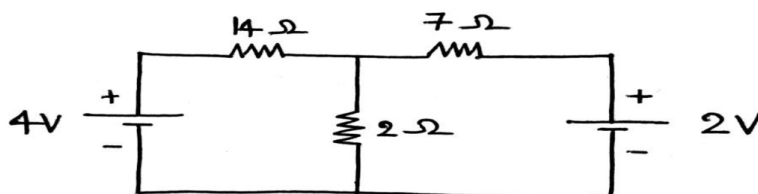
12. (a) Derive an expression for total resistance when three resistances

R₁,R₂ & R₃ are connected in series

(b) The effective resistance of two resistances when connected in

series across 200V supply is 50 Ω. If the voltage drop across one of

the resistance is 80V. Find the values of two resistances

13. What are the different speed control methods used to vary the speed of D.C Shunt motor and explain them

14. Explain the terms

a) Frequency   b) Average Value   c) R.M.S Value d) Form Factor

15. A coil of resistance 10Ω is connected in series with a coil of inductance 0.02H and is connected to AC mains of 100V and 50Hz. Calculate current, power factor and voltage drop across resistance and inductance

16A. Write the E.M.F equation of a D.C Generator and mention each parameter.

B. Explain forward and reverse running of single phase capacitor start Induction Motor.

17. a) Explain Zener and Avalanche Breakdown with a diagram

b) Draw the input and output characteristics of CE connection of a transistor and explain.

18. Draw & Explain construction and working of Induction type single phase Energy meter

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