C16–MNG–**302**

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BOARD DIPLOMA EXAMINATION, (C–16)

MARCH/APRIL—2018

DMNG—THIRD SEMESTER EXAMINATION

BASIC ELECTRICAL AND ELECTRONICS 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 the working principle of DC motor.

2. Write any three applications of DC series motors.

3. An alternating current is represent by $i = 42 + 42\sin 628t$. Determine *(a)* average value and *(b)* RMS value.

4. State the expression for power factor of a *R-L* circuit.

5. Classify transformers based on the construction.

6. Define voltage regulation of a transformer.

7. Classify the single phase induction motors.

8. Define *(a)* torque and *(b)* slip of an induction motor.

9. Sketch the energy level diagram for *(a)* conductors and *(b)* insulators.

10. Distinguish between intrinsic and estrinsic semi conductor.

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. Explain the operation of a 3-point starter with neat diagram.

12. Explain the speed control methods of DC shunt motor by *(a)* armature control method and *(b)* field control method.

13. A pure resistance of 50 is connected in series with a pure capacitance of 100 F across 100 V, 50 Hz suply. Find *(a)* impedance, *(b)* current, *(c)* voltage across resistor and capacitor, *(d)* power factor and *(e)* power consumed in the circuit.

14. Explain the constructional details of a transformer with neat sketch.

15. Explaint eh constructional details of an induction motor with a neat sketch.

16. Explaint he constrution and working principle of a dynamometer type wattmeter with neat sketch.

17. *(a)* Distinguish between N-type and P-type semi conductor in any six aspects   6

(b) State the applications of common emitter and common base transistors.   4

18. Explain the working of LED and mention any three applications of it.

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