B.E. All Branches Second Semester (C.B.S.) / B.E. (Fire Engineering) Second Semester

Advanced Electrical Engineering

P. Pages : 2 **NRT/KS/19/3291/3939**

Time : Two Hours * 0 5 7 7 * Max. Marks : 40

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Assume suitable data whenever necessary.
7. Illustrate your answers whenever necessary with the help of neat sketches.
8. Use of non programmable calculator is permitted.

1. a) Explain thermal power plant with neat schematic diagram. **5**

b) Explain on- line and of line UPS. **5**

OR

2. a) Draw a neat single line diagram for generation, transmission and distribution through different voltage levels. **5**

b) Write comparison between owner head and under ground distribution system. **5**

3. a) Derive E. M. F equation of D. C generator. **4**

b) An 8 pole armature has 96 slots with 8 conductors per slot. It is driven at 600 rpm. The useful flux per pole is 10 mwb. calculate the induced EMF in armature winding when it is (a) Lap connected (b) wave connected. **6**

OR

4. a) Derive the torque education of DC motor. **4**

b) A 4 pole Lap wound shunt motor consumes 20A at a terminal voltage of 250 V. It has a field and armature resistance of 250 Ω and 0.05 Ω respectively. Neglect brush drop. Determine : 1) Armature current ii) Back EMF. **6**

5. a) Explain the construction and working of mercury vapour Lamp. **5**

b) Define the following terms: **5**

i) Luminous flux. ii) Luminous Intensity.

iii) Luminous Efficiency. iv) Candle power.

v) Illumination.

OR

6. a) Define Tariff. What are different types of tariff? Explain one part tariff. **4**

b) A domestic consumers monthly consumption of Electricity can be approximated as under. **6**
4 Tube lights 40 watt each for 4 hours a day.
4 fans 60 watt each for 4 hours a day.
2 Room heater 2 kw each 2 hours a day.
1 Geyser 2.5 kw each for one hours daily.
2 T.V 150 w each for 4 hours a day.
Find the bill for a month of march – 19 for the following tariff.
Rs. 2.00 per kwh for first 15 units.
Rs. 2.50 per kwh for next 20 units.
Rs. 4.00 per kwh for remaining units.

7. a) A 400 V, 50 Hz, 3 phase I. M has 4 poles calculate. **6**
i) Synchronous speed.
ii) Slip, if motor speed is 1440 rpm.
iii) Motor speed, if slip is 5%.
iv) Rotor frequency at stand still.

b) Give the difference between squirrel cage rotor and slip ring rotor type I. M. **4**

OR

8. a) Why single phase I. M is not self – starting motor? What provision is made to make is self starting? **5**

b) Explain with diagram the working of capacitor start capacitor run single phase I. M **5**

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