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

Advanced Electrical Engineering

P. Pages : 2 **NRJ/KW/17/4346/4996**

Time : Two Hours * 0 1 1 2 * 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. Due credit will be given to neatness and adequate dimensions.
7. Assume suitable data whenever necessary.
8. Illustrate your answers whenever necessary with the help of neat sketches.
9. Use of non programmable calculator is permitted.

1. a) Explain the necessity of equipment earthing. Explain Pipe type Earthing. **5**

b) Write comparison between overhead and underground distribution system. **5**

OR

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

b) What do you mean by Fuse? 'Explain Rewirable and HRC fuses. **5**

3. a) State the functions of following DC machine parts. **5**
1) Commutator
2) Yoke
3) Armature winding

b) A 4 pole lap connected generator has 80 slots with 10 conductor per slot rotates at 1000 rpm which induces 400 V. At what speed generator is rotate when it induces 200V. **5**

OR

4. a) Derive torque equation of a D.C. motor. **5**

b) A 4 pole lap wound shunt motor consumes 20A at terminal voltage of 250V. It has a field and armature resistance of 50Ω and 0.05Ω respectively. Neglecting brush drop **5**
Determine
i) Armature current ii) Emf induced

5. a) Explain the working & construction 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) What are different types of tariff ? Explain one part tariff? **5**

b) A consumer has following load schedule for a day. **5**

i) From midnight 12pm to 6am = 200 watt
ii) From 6 am to 12 noon = 3000 watt
iii) From 12. noon to 1 pm = 100 watt
iv) From 1 pm to 4 pm = 4000 watt
v) From 4 pm to 9 pm = 2000 watt
vi) From 9 pm to midnight 12 = 4000 watt

If the tariff is 35 paise / kwh. Find the daily bill the consumer has to pay.

7. a) Explain torque-slip characteristics of 3 phase induction motor. **5**

b) Explain the working & construction of shaded pole single phase induction motor. **5**

OR

8. a) Write comparison between squirrel cage and slip ring Induction motor. **5**

b) A 3 – ϕ 16, Pole Induction motor having synchronous speed of 400 rpm and rotor speed of 352 rpm. **5**

Calculate :

i) Frequency
ii) Rotor frequency
iii) Stand still frequency
iv) Slip
v) Slip speed.

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