Second Semester B. E. (C.B.S.) Examination

AEE (ADVANCE ELECTRICAL ENGINEERING)

Time : Two Hours]　　　　　　　　[Max. Marks : 40

　　N. B. : (1) All questions carry marks as indicated.
　　　　　　(2) Assume suitable data wherever necessary.
　　　　　　(3) Illustrate your answers wherever necessary with the help of neat sketches.
　　　　　　(4) Non programmable calculator is permitted.

1. (a) What is the meaning of 'Electricity" and how it is generated, transmitted and distributed to end Consumer? Explain with a single line diagram.

　　　　　　　　　　　　　　　　　　　　　6

　(b) Explain ONline and OFFLine UPS.　　　4

OR

2. (a) Explain Thermal Power plant with neat schematic diagram.　　　　　　　　　　　　　7

　(b) What is the necessity of the following components in household protection purpose ?

　　(i) Fuse　　　　　　(ii) MCB　　　　3

3. (a) Derive the emf equation of DC Generator.　4

　(b) 4 pole lap connected generator has 80 slots with 10 conductors per slot rotates at 1000 RPM which induces 400 V. At what speed generator is rotated when it induces 200 V ?　　　6

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OR

4. (a) What is the significance at Back EMF in dc motors ?   3

    (b) Write applications of :—

        (i)   DC shunt motor.

        (ii) DC series motor.   2

    (c) A 4 pole lap wound dc motor has 480 conductors which is connected across 200 V supply. The flux per pole is 24 mwb which runs motor to 1000 RPM.

        Calculate :—

        (i)   Back EMF.

        (ii) Armature Current.

        (iii) Power o/p.

        Assume Ra.= $1\,\Omega$ & Total brush drop is 2 V.
                                                          5

5. (a) Define following terms :—

        (i)   Candle Power.

        (ii) Luminance.

        (iii) Luminous intensity.

        (iv) Luminous flux.   4

    (b) Explain working and construction of Fluorescent Tube.   6

OR

6. (a) Explain the objectives of Tarrif.   3

(b) The monthly electricity consumption of a residence is given as follows :

Light load : 6 Tube lights, 60 watts each working 360 mins. daily.

Fan load : 3 Fans, 100 watts each working 240 min. daily.

TV load : 2 TVs,175 watts each working 600 mins. daily.

Miscellaneous Load : 1 kw for 60 mins daily.

Calculate monthly expected bill when tariff is fixed at 3.25 Rs./Unit.   7

7. (a) Draw and explain Torque–slip characteristics of 3–phase Induction motor.   5

(b) A 3–ϕ 16–pole I. M. having synchronous speed of 400 RPM and Rotor speed of 352 RPM.

Calculate :—

(i) Frequency.

(ii) Rotor frequency.

(iii) Stand still frequency.

(iv) Slip.

(v) Slip speed.   5

OR

8. Write note on (any **two**) :—

(i) Double field Revolving Theory.   5

(ii) Shaded pole IM.   5

(iii) Capacitor start capacitor Run I. M.   5

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