



MALLA REDDY UNIVERSITY
SCHOOL OF ENGINEERING
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common for CSE/IT/IOT)
II MID QUESTION BANK

UNIT-III

1. a) Derive an emf equation of a single-phase transformer.
b) A 30 KVA single phase transformer has 500 turns on primary and 60 turns on secondary winding. The primary is connected to 300 volt, 50Hz supply. Find the full load primary and secondary currents, secondary emf and the maximum flux in the core. Neglect leakage drop and no-load current.
2. a) How a single phase transformer works? Explain.
b) A 2200/220 V, 50Hz single phase transformer has emf per turn of approximately 10 V. Calculate a) the number of primary and secondary turns b) the cross-sectional area of the core if the maximum flux density is limited to 1.5 T.
3. a) Explain working Principle and operation of DC motor.
b) Derive the Torque equation of DC motor.
4. a) Explain the Constructional details of DC generator.
b) Explain about the construction of single-phase Transformer.
5. Explain the applications of Induction motor, stepper motor and BLDC motor.

UNIT-IV

1. a) Illustrate the operation Zener diode and explain its V – I characteristics.
b) Draw the forward and reverse characteristics of a p-n junction diode and explain them.
2. a) Explain the operation of Center-tapped full wave rectifier with relevant waveforms.
b) Derive expression for ripple factor for a full wave rectifier.
3. a) Explain the operation of Half Wave Rectifier with necessary waveforms.
b) Compare Half wave rectifier and Full wave rectifier in any four aspects .
4. a) Explain the construction and principle of operation of NPN transistor with neat diagram.
b) Explain the construction and principle of operation of PNP transistor with neat diagram.

UNIT-V

1. a) Perform the following conversions $(476.64)_{10} = ()_2 = ()_8$
b) Convert $(946)_{10}$ into binary and Hexadecimal.
2. i) Convert the given Octal number $(2564.603)_8$ to Hexadecimal Number.
ii) Given that $(81)_{10} = (100)_b$, Find the value of b.
3. Solve for x
a) $(367)_8 = (x)_2$ ii) $(378.93)_{10} = (x)_8$ iii) $(B9F.AE)_{16} = (x)_8$ iv) $(16)_{10} = (100)_x$
b) Convert $(163.875)_{10}$ to binary, octal and hexadecimal.
3. a) Convert the following to Decimal and then to octal.
i) $(125F)_{16}$
ii) $(10111111)_2$
iii) $(4234)_5$.
b) Express the following numbers in decimal: $(10110.0101)_2$, $(16.5)_{16}$, $(26.24)_8$.
4. Solve for X
i) $(F3A7C2)_{16} = (X)_{10}$
ii) $(2AC5)_{16} = (10949)_X$
iii) $(0.93)_{10} = (X)_8$
iv) $(4057.06)_8 = (X)_{10}$
5. a) Explain various number systems and their conversion with examples for each
b) Explain about BCD, Excess-3 and gray codes in detail.
6. a) Explain about AND, OR, NOT, NAND, NOR and EX-OR gates in detail.
b) Given 2 binary numbers $X = (1010100)_2$ and $Y = (1000011)_2$. Perform 2's complement subtraction for: i) $X - Y$ ii) $Y - X$.