JGi

JAIN COLLEGE, JAYANAGAR

I PUC Mock Paper 2016

Subject : Electronics (40)

Duration: 3 hrs 15 minutes   **Max.Marks: 70**

PART – A

I.   Answer ALL the following questions: **1x10=10**
1) When a neutron glass rod is rubbed with silk cloth, it acquires a charges of $+24\times10^{19}$C. What is the charge on the silk cloth?
2) Which type of circuit is called as voltage divider circuit?
3) Give the expression for energy stored in an inductor.
4) Define capacitive reactance.
5) What is doping?
6) Draw the symbol of varactor diode.
7) Why transistor is called current controlled device?
8) Which region of transistor is largest in area?
9) Find the 1's complement of $(1000)_2$.
10) Define AND gate

PART - B

II.   Answer any FIVE of the following   **2x5=10**
11) Write a brief note on role of electronics in medical field.
12) .Mention any two applications of CRO.
13) Draw the phasor diagram of a pure inductive circuit.
14) How does an election- hole pair is generated in a semiconductor? Explain.
15) Write the relationships between α and β of a transistor.
16) Draw the output characteristics of a transistor indicating different regions.
17) Show that $AB\overline{C}\ (AB+\overline{A}C) = AB\overline{C}$
18) Write a note on schottky diode.

PART - C

**III.   Answer any FIVE of the following**   **3x5=15**
19) Mention any three applications of Internet.
20) Explain how a current source is converted in to its equivalent voltage source.
21) State and explain Kirchhoff's voltage law.
22) Explain the working of a transformer.
23) What is a positive clamper? Explain its working. Draw the waveforms.
24) Write a note a ideal diode approximations.
25) With neat lattice structure, explain the formation of p-type semiconductor.
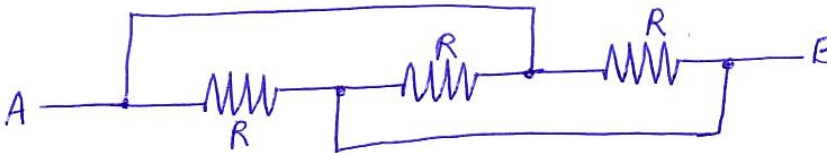26) Explain the steps involved in PCB desiging.

PART - D

IV.   Answer any THREE of the following   **5x3=15**
27) Draw the Thevinin's equivalent circuit of the following network. Find I_1 and V_2;
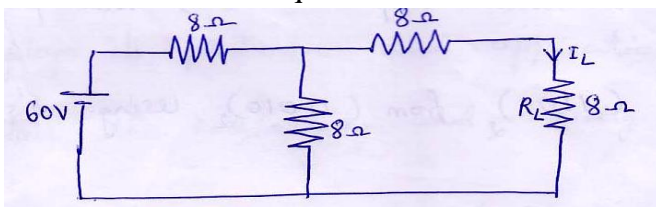
28) a) Find the effective capacitance between A and B
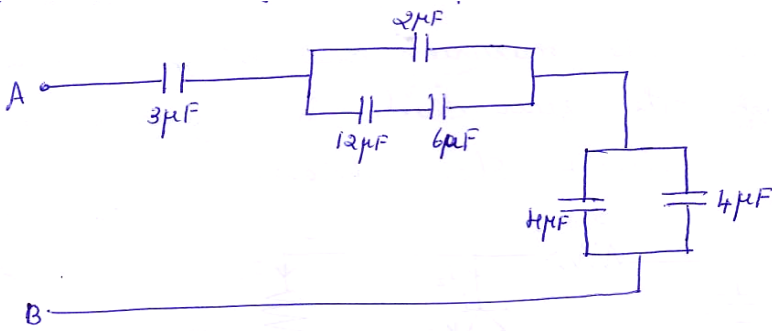

b) Find the equivalent resistance between A and B

29) A 106Ω resistor series with an inductor of inductance 1mH and a capacitor of capacitance 0.1μF, supplied with a voltage of 50mV 50H$_z$. calculate total impedance (Z) and phase angle.

30) a) Subtract $(1101)_2$ from $(11010)_2$ using 2's complement method.

b) Convert $(1A6)_{16}$ to binary.

31) Determine the maximum and minimum current through the zener diode in a zener diode voltage regulator circuit shown below.
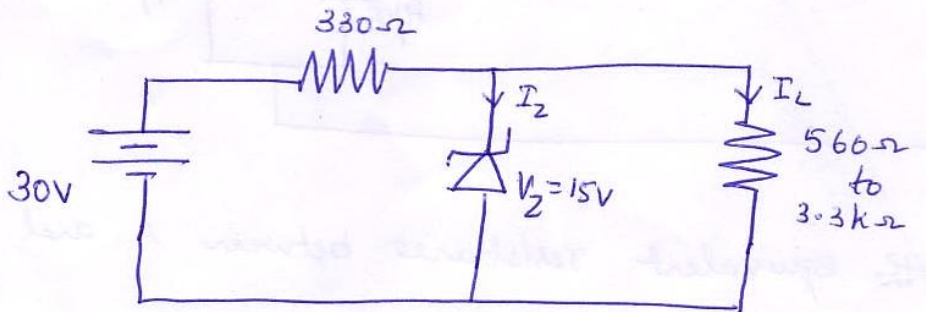
PART - E

V. **Answer any FOUR of the following** 5x4=20

32) State and Explain maximum power transfer theorem.

33) Explain the construction of carbon composition resistor. Explain its properties and applications.

34) Explain the construction and working of loud speaker.

35) Explain the growth of charge in an R C circuit supplied with dc voltage source.

36) With neat circuit diagram and waveforms, Explain the working of centre taped full wave rectifier.

37) Explain the working of DTL NOR gate. Draw its truth table.

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