

Code.No: R05310101

R05

SET-1

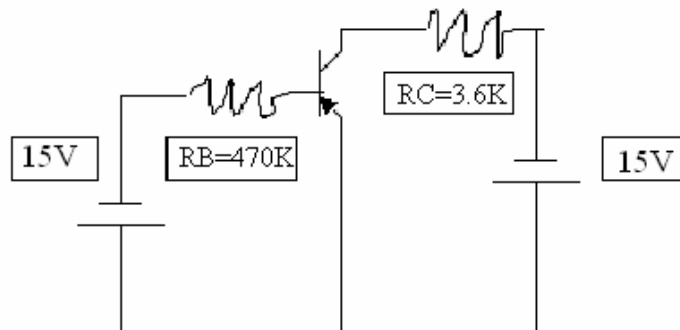
III B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
ELECTRICAL AND ELECTRONICS ENGINEERING
(CIVIL ENGINEERING)

Time: 3hours**Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

- 1.a) What are the various types of sources available in electrical networks? Explain them?
- b) Explain current division in parallel circuit and voltage division in series circuit with example? [8+8]
- 2.a) What are the different types of D.C. motors. Explain with neat diagrams.
- b) A 220V D.C. shunt motor runs at 500 rpm when the armature current is 50A. Calculate the speed if the torque is doubled. Given that $R_a=0.2\Omega$. [8+8]
- 3.a) Enumerate the various losses in a transformer. How these losses are minimized.
- b) A 250 KVA, single phase transformer has 98.15% efficiency at full load and 0.8 lagging power factor. The efficiency at half load and 0.8 lagging power factor is 97.751%. Calculate the iron loss and full load copper loss. [8+8]
- 4.a) Explain how are alternators classified?
- b) Explain how a 3 phase rotating magnetic field with constant magnitude is produced in an induction motor? [8+8]
5. A voltage of 80.0V is applied to a circuit comprising two resistors of resistances 105Ω and 55Ω respectively. The voltage across the 55Ω resistor is to be measured by a voltmeter of internal resistance $100\Omega/V$. Given that the meter is set to a scale of 0-50V. Determine the voltage indicated. [16]
- 6.a) A FWR circuit with LC type filter is to supply a dc current of 20mA at 16V. If $f=50\text{Hz}$ and the ripple allowed is 0.5%. Find suitable values for L and C required and the transformer secondary voltage.
- b) Derive the equation of a diffusion capacitance of a forward biased diode and compare it with transition capacitance. [8+8]
- 7.a) Explain the operation of a transistor showing all the current components.
- b) Find the VCE for the following circuit as shown in figure.1 using the ideal transistor and $\beta=100$? [8+8]



- 8.a) A CRT consists of a magnetic coil at a distance of 22cm from the screen. If the length of the region of the magnetic field along the tube axis is 4 cm, calculate the value of B (magnetic flux density) required for producing a deflection of 1cm on the screen for the final anode voltage of 400v.
- b) What are the functions of pre accelerating anode, focusing anode and accelerating anode of a CRT? [8+8]

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FIRSTRANKER

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SET-2

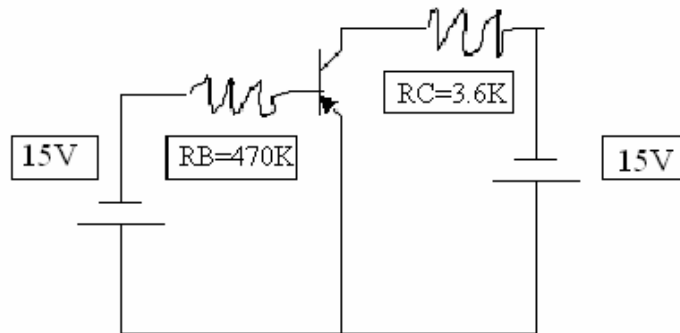
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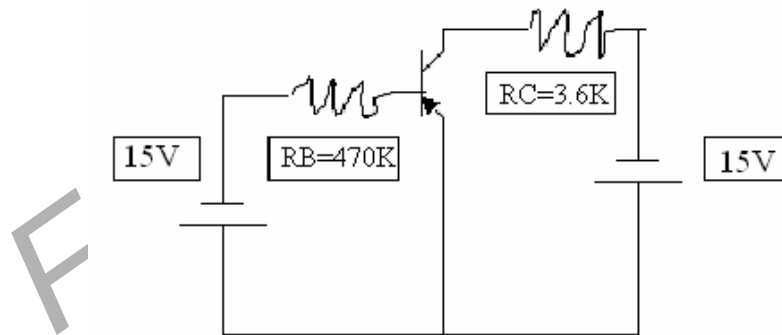
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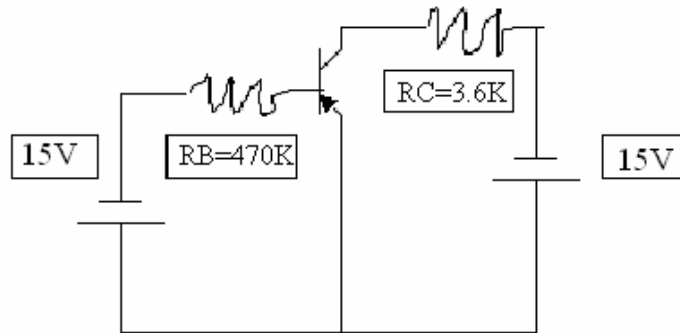
SET-4

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