Code: 9A02401

R09

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

PRINCIPLES OF ELECTRICAL ENGINEERING

(Common to EIE, E.Con.E, ECE & ECC)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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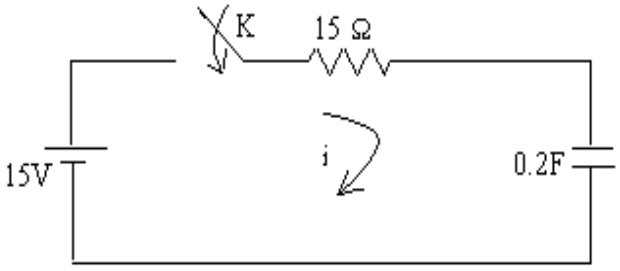
1 A series RC circuit consists of R = 15 Ω and C = 0.2 F as shown in fig below. A constant voltage of 15 V is applied at t = 0. Obtain the current equation. Derive the equation for current and determine the voltage across the resistor and the voltage across the capacitor.



2 (a) Define and obtain Open circuit impedance parameters by taking any one example.

(b) A two port network has the following parameters: Z_{11} = 20 Ω, Z_{12} = 5 Ω, Z_{21} = 20 Ω and Z_{22} = 15 Ω. Calculate short circuit parameters.

3 (a) Write short notes on Band-stop filters.

(b) Design a prototype band stop filter section having cut-off frequencies of 2000 Hz & 5000 Hz and design resistance of 600 Ω.

4 What is an attenuator? What are the types of attenuators? Explain any two types of attenuators by deriving necessary equations.

5 A long-shunt compound generator supplies a load at 200 V through a pair of feeders of total resistance 0.04 ohm. The load consists of four motors, each taking 50 A and a lighting load of 100 bulbs each of 50 W. The armature resistance is 0.03 ohm, series field resistance 0.04 ohm and shunt field resistance 40 ohm.

Find: (i) Load current.

(ii) Terminal voltage.

(iii) emf generated.

6 A 200 V dc shunt motor develops an output of 16.9 kW when taking an input of 20.2 kW. The field winding resistance is 50 ohm and armature resistance is 0.06 ohm. Calculate the efficiency and power input when the output is 7.35 kW.

7 Explain the constructional details of a single phase transformer.

8 (a) Explain the principle of operation of Shaded pole motor.

(b) Explain the characteristics of Synchros.

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