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Code No. : 11012 BEE S

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) I-Semester (New) Supplementary Examinations, May/June-2018

Basic Electrical Engineering
(CSE, ECE & IT.)

Time: 3 hours

Max. Marks: 60

Note: Answer ALL questions in Part-A and any FIVE from Part-B

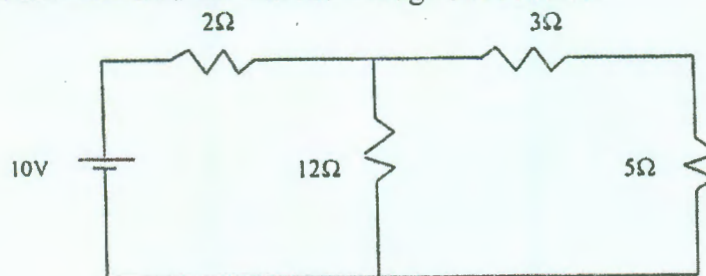
Part-A (10 × 2=20 Marks)

1. Distinguish between "Thevenin's" and "Norton's" theorems.
2. What are the various network elements? Discuss briefly.
3. Distinguish between AC & DC.
4. Mention few differences between Electric circuits & magnetic circuits.
5. Enumerate the constructional differences between a separately excited DC machine and a self-excited DC machine.
6. What is the drawback of a DC series motor and state how it is overcome in a DC Compound motor?
7. State few applications of Single phase transformers.
8. Comment on the significance of the term "Slip" in a squirrel cage three phase induction motor.
9. Explain why Solar and Wind Power generation is necessary?
10. Mention the salient features of a stepper motor.

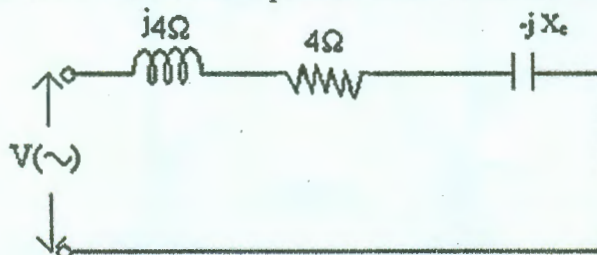
Part-B (5 × 8 = 40 Marks)

(All sub-questions carries equal marks)

11. a) By Norton's theorem find the current through 5Ω resistor.



- b) With the help of neat figures explain Kirchhoff's laws.
12. a) Define Magnetic circuit. How is it different from an electric circuit?
b) A Find the value of X_C if the overall power factor of circuit is 0.8 lagging.



13. a) With the help of a neat figure explain the construction of a DC shunt generator.
- b) A 120V DC shunt motor has an armature resistance of 0.2 ohms and field resistance of 60 ohms. It runs at 1800 rpm, when it is taking full load current of 40 A. Find the speed of the motor when it is operating with half load.
14. a) Explain different types of 3 phase induction motors.
- b) An 8-pole ac generator is running at 750 rpm. What is the frequency? At what speed must the generator be run so that the frequency shall be 25Hz.
15. a) Compare hydro & thermal power plants.
- b) With the help of neat figures explain the construction of a capacitor start and capacitor RUN single phase induction motor.
16. a) Derive an expression for equivalent resistance in case of a circuit having three resistances R_1 , R_2 & R_3 in parallel.
- b) In an A.C. circuit, the applied voltage is given by $v = 200 \sin(314t)$ and the current is given by $i = 20 \cos(314t)$. Find the circuit constants and also the power factor of the circuit.
17. Answer any *two* of the following:
 - a) Significance of Back Emf in DC Motors.
 - b) Autotransformers.
 - c) Nuclear power generation.

