Q 9349

B.Sc. DEGREE EXAMINATION, MAY/JUNE 2006.

Second Semester

Apparel and Fashion Technology

BFT 122 — BASICS OF ENGINEERING

(Regulation 2003)

Time : Three hours Maximum : 100 marks

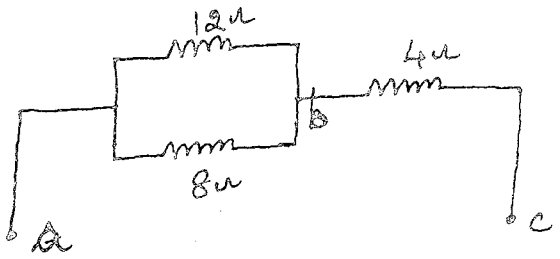
Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the working principle of cam mechanism.

2. Define "Pneumatics".

3. Determine the equivalent resistance of the following circuit across ac.



4. Give the expressions for real and reactive power.

5. Write the working principle of DC Motor.

6. Give four main applications of three phase Induction Motor.

7. What is the equation for a sinusoidal current of 25 Hz frequency having and rms value of 40 Amps?

8. Write short notes on Voltage Regulators.

9. List out various effects of negative feedback on the Gain.

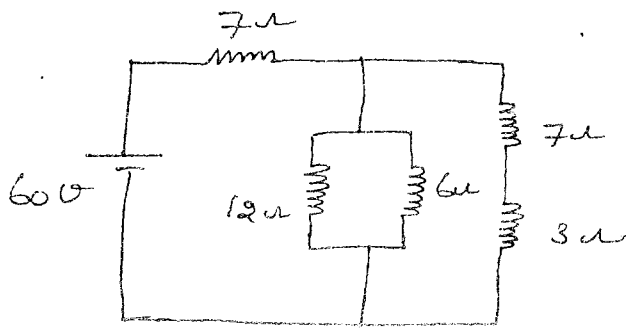
10. Give for advantages of oscillators.

PART B — (5 × 16 = 80 marks)

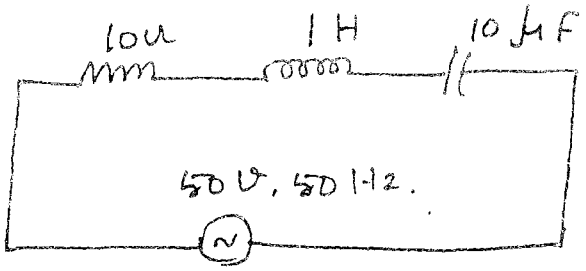
11. (i) What is the purpose of a pulley? List out various types of pulley and explain each. (8)

(ii) Explain about Ratchet mechanism. (8)

12. (a) (i) Obtain the total power supplied by 60 Volts source of the following circuit. (8)

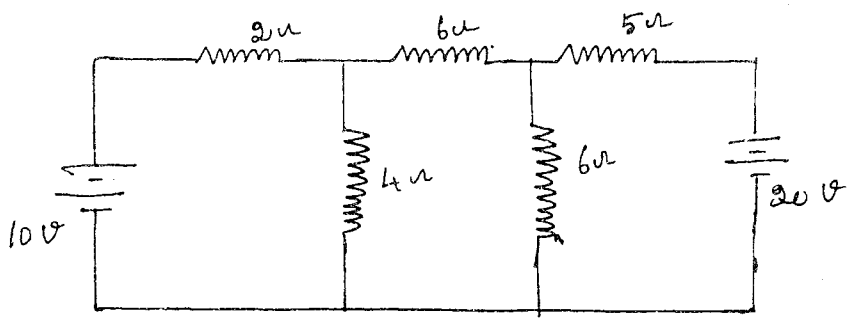


(ii) For the circuit shown below, determine the real power and reactive power. (8)



Or

(b) (i) Calculate the current through the 5 Ω resistance of the given network, by applying Kirchoff's Laws. (8)



(ii) Compare a single phase and three phase circuits. (8)

13. (a) (i) Write the working principle of a D.C. Generator, with the help of a neat sketch. (8)

(ii) Explain the principle and operation of a single phase Transformer. (8)

Or

(b) Explain in detail the construction and working principle of three phase Induction motor. Also derive the torque equation of it. (16)

14. (a) (i) Compare and contrast full wave and half wave rectifiers. (8)

(ii) A current wave form is made up of two components, direct current of 10 Amps and sinusoidal current of 50 Hz with a peak value of 10 A. Draw the resultant waveform. Also determine the average and rms value of the resultant current waveform over one cyle. (8)

Or

(b) (i) Derive the rectification efficiency of a full wave rectifier. (8)

(ii) Explain RC coupled Amplifier, with a neat sketch. (8)

15. (a) (i) Explain the basic concepts and working of an oscillator. (8)

(ii) Compare current and voltage feedback amplifier circuits. (8)

Or

(b) (i) Draw the basic block diagram of an oscillator. Also give the various types of oscillator with its frequency ranges. (8)

(ii) Derive the gain and Bandwidth of a negative feedback Amplifier. (8)
