E 9234

B.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

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.   Give various types of levers.

2.   Give some advantages ratchet mechanism.

3.   What is power factor?

4.   Distinguish between Real Power, Reactive Power and Apparent Power.

5.   What is armature reaction?

6.   Define slip of an induction motor.

7.   Define ripple factor.

8.   What are the advantages of RC coupled amplifier?

9.   Define bandwidth.

10. Differentiate voltage and current feedback amplifier.

PART B — (5 × 16 = 80 marks)

11. (i)   Differentiate pulley and gear mechanism with proper sketches.   (8)

     (ii) What is meant by pneumatics? List and explain some industrial uses of pneumatics.   (8)

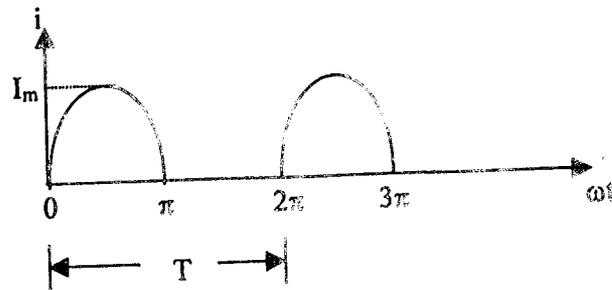12. (a) (i) Figure 12. a shows the output waveform of a half wave rectifier circuit. Find Average value and RMS value. (8)

Figure 12.a

(ii) State and explain Kirchoff's voltage and current law. (8)

Or

(b) (i) Derive expressions for capacitances in series and capacitances in parallel. (10)

(ii) Differentiate between balanced and unbalanced voltages, balanced and unbalanced loads. (6)

13. (a) (i) With neat diagrams, explain the constructional view of a D.C. generator. (10)

(ii) Explain the working principle of a D.C. motor. (6)

Or

(b) (i) Write the principle of operation of 3 phase induction motor. (8)

(ii) Explain the principle of operation of a transformer. Bring out the function of the core. Is it possible to have a transformer with only air as core? (8)

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

(ii) Derive the rectification efficiency of a full–wave rectifier. (8)

Or

(b) (i) Explain the working of series voltage regulators with proper input and output waveforms. (8)

(ii) Obtain the frequency response of a RC coupled amplifier. (8)

E 9234

15. (a) (i) Explain any one type of negative feedback amplifier. (8)

   (ii) What is the main function of an oscillator and give its classification. (8)

Or

   (b) (i) Explain the effect of negative feedback on the gain of feedback amplifiers. (8)

   (ii) Describe in detail the operation of the Wien bridge oscillator. (8)

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E 9234