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# B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

### Fifth Semester

Branch : Electronics and Communication Engineering

EC 010 506—MICROPROCESSORS AND APPLICATIONS [EC]

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours                                                  Maximum : 100 Marks

### Part A

*Answer* **all** *questions.*
*Each question carries 3 marks.*

1. Draw the pin diagram of 8085.

2. How is a data written into the memory by 8085.

3. Differentiate between ADC and DAC.

4. Write a note on DMA.

5. Write a note on maximum mode of operation in 8086 ?

(5 × 3 = 15 marks)

### Part B

*Answer* **all** *questions.*
*Each question carries 5 marks.*

6. Explain the different control signals in 8085 ?

7. Write an ALP to find the average of odd number in the given array.

8. How can an ADC be interfaced to 8085 ?

9. Explain the internal architecture of 8259 A ?

10. Explain the memory organisation in 8086.

(5 × 5 = 25 marks)

### Part C

*Answer* **all** *questions.*
*Each full question carries 12 marks.*

11. (a) Explain the I/o addressing in 8085 ?

    (b) Draw the timing diagram for the Instruction MVIA, 45H and explain.

*Or*

**Turn over**

12. (a) Explain the pinconfiguration and functions of 8085.

    (b) Explain the latching of lower order address bus in 8085.

13. Give an account of interrupts in 8085. Explain the function of RIM and SIM instructions in this context.

*Or*

14. Discuss the interfacing of microprocessor compatible ADCs using status check and wait states ?

15. (a) Write an ALP to transmit an ASCII character in register B using SOD times ?

    (b) Write a technical note on stack and subroutines ?

*Or*

16. (a) Explain the different addressing modes in 8085 with examples ?

    (b) Annotate on the logical operations using 8085 ?

17. With the help of a neat sketch, explain the working of 8237.

*Or*

18. (a) Explain the control logic in 8255 A ?

    (b) Write a subroutine to set PC2 and PC5 in 8255 A and then reset them after 15 ms.

19. Explain the different addressing modes of 8086 with examples.

*Or*

20. Explain the write cycle and read cycle for maximum mode in 8086 using timing diagrams ?

$(5 \times 12 = 60 \text{ marks})$

# B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

### Fifth Semester

Branch : Electronics and Communication Engineering

## EC 010 504—ELECTRICAL DRIVES AND CONTROL (EC)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

### Part A

*Answer all questions.*
*Each question carries 3 marks.*

1. Give the applications of DC series and DC shunt generators.

2. What the different methods employed to produce the starting torque in single-phase induction motor ?

3. List the essential parameters of the specification of SCR.

4. Distinguish between VSI and CSI.

5. Draw the single-phase semi Converter and full Converter circuits feeding inductive loads.

(5 × 3 = 15 marks)

### Part B

*Answer all questions.*
*Each question carries 5 marks.*

6. An eight pole d.c. generator has a simple wave wound armature containing 32 coils of 6 turns each. Its flux per pole is 0.06 Wb. The machine is running at 250 r.p.m.. Computer the induced armature voltage ?

7. Derive the expression for the induced e.m.f. of a single phase transformer.

8. What the requirement of pulse transformer in the triggering circuit of SCR.

9. The fully controlled thyristor Converter is fed from a single-phase AC source. When the firing angle is 0°, the d.c. output voltage of the Converter is 300 V ? What will be the output voltage for a firing angle of 60° assuming continuous conduction ?

10. Write short notes on three-phase rectifier fed drives.

(5 × 5 = 25 marks)

**Turn over**

## Part C

*Answer **all** questions.*

*Each full question carries 12 marks.*

11. (a) Explain the load characteristics of DC shunt motor. (6 marks)

    (b) Discuss the different losses in DC motor. (6 marks)

*Or*

12. (a) Explain the external characteristics of a DC series generator with respect to any *one* of its application.

    (8 marks)

    (b) Explain the importance of Swinburne's test. (4 marks)

13. Explain the procedure of conducting OC and SC test on single-phase transformer and narrate its requirement.

*Or*

14. (a) Draw the torque-slip characteristics of a three-phase induction motor and explain its stable and unstable portions. What is meant by pull out torque ?

    (8 marks)

    (b) What happens to the power drawn by an induction motor if its rotor is externally driven to synchronous speed ?

    (4 marks)

15. (a) Narrate the constructional features and characteristics of power diode with neat sketch.

    (8 marks)

    (b) How are the power transistors different from simple transistors ? (4 marks)

*Or*

16. (a) Narrate the constructional features of SCR with neat sketch. (6 marks)

    (b) How can be obtain the functionality of TRIAC using SCRs ? (6 marks)

17. Explain the principle of operation and application of SMPS with necessary schematic.

*Or*

18. Explain the functioning of two quadrant and four quadrant operation of DC chopper.

19. Explain different methods of speed control of induction motors.

*Or*

20. Discuss the advantages and disadvantages of DC and AC drives.

[5 × 12 = 60 marks]