

H.T No:

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R18

Course Code: B30322



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

M.Tech III Semester Supplementary Examinations July/August-2024

Course Name: Special Electrical Machines

(Power Electronics)

Date: 15.07.2024 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all FIVE questions (Compulsory)

Each question carries FOUR marks.

5x4=20M

1. Compare conventional DC motor and PMBLDC motor. 4M
2. State the significance of power controllers of PMSM. 4M
3. Mention the significance of closed loop control in switched reluctance motor. 4M
4. Define the terms holding and detent torques as referred to stepper motor. 4M
5. Elaborate the characteristics of Hysteresis motor. 4M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

6. A). Derive an expression for permeance coefficient for PMBLDC motor. 10M
- OR**
6. B). Explain in detail about the construction and working principle of PMBLDC motor. 10M
7. A). Explain the construction and working principle of operation of PMSM. 10M
- OR**
7. B). Discuss the current control scheme of permanent magnet synchronous motor in detail. 10M
8. A). Explain with a neat diagram the constructional details and working of rotary switched reluctance motor. 10M
- OR**
8. B). Discuss the necessity of power electronic circuit in SR motor. Explain the different types of converter circuits in details. 10M
9. A). Discuss the following : (i) Modes of excitations of stepping motors. 5M
(ii) Characteristics of stepping motors. 5M
- OR**
9. B). With a neat block diagram explain microprocessor control of stepping motor. 10M
10. A). Explain the principle and operation of Hysteresis motor. 10M
- OR**
10. B). Compare and contrast the applications of AC series motor with linear motor. 10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

M.Tech III Semester Supplementary Examinations July/August-2024

Course Name: Embedded Systems

(Power Electronics)

Date: 18.07.2024 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all FIVE questions (Compulsory)

Each question carries FOUR marks.

5x4=20M

1. Differentiate the RISC and CISC. 4M
2. Describe the role of assembly and linking in embedded system. 4M
3. Explain which should have lower overhead- a preemptive or cooperative context switching mechanism, justify. 4M
4. What is a distributed embedded system explain with an example? 4M
5. Why design methodologies required for an embedded system explain? 4M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

6. A). Explain Embedded System Design Process in detail with suitable flow chart. 10M
- OR**
6. B). Write short note on following terms: 10M
i) Supervisor mode ii) Exceptions iii) Co-processors iv) Pipelining
7. A). Explain basic compilation techniques used in embedded system design. 10M
- OR**
7. B). Discuss the importance of optimization in embedded system and explain how to optimize execution time, energy and power. 10M
8. A). Explain the different types of scheduling policies? State the merits and demerits of each? 10M
- OR**
8. B). What is an Inter Process Communication? Give an overview of different IPC mechanisms adopted for embedded systems. 10M
9. A). Define and explain the role of accelerator in embedded systems. If you are designing an embedded system using an Intel 486 as a host. Does it make sense to add an accelerator to implement the function $z=ax+by+c$? Explain. 10M
- OR**
9. B). Write brief note on various networks used for embedded system design. 10M
10. A). Explain the term "Requirements Analysis" in detail. 10M
- OR**
10. B). Demonstrate how to turn specifications into an architecture design. 10M
