



Regulation R18

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 2E5BA

**B.Tech V Semester Supplementary Examinations, June/July 2023**  
**ELECTRICAL MACHINE DESIGN**  
(EEE)

Maximum Marks: 70

Date:01.07.2023 Duration: 3 hours

- Note: 1.This question paper contains two parts A and B.  
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.  
3. Part B consists of 5 Units. Answer any one full question from each unit.  
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- |    |  |    |
|----|--|----|
| 1  | What is are the materials used for magnetic circuit. .             | 02 |
| 2  | Define specific electrical loading .                               | 02 |
| 3  | List the advantages of core type transformer. .                    | 02 |
| 4  | Write the different types slots used in induction machine          | 02 |
| 5  | List the caad software used for designing machines                 | 02 |
| 6  | Distinguish between salient pole and non salient pole alternator . | 02 |
| 7  | What are the disadvantages of high specific magnatic loading.      | 02 |
| 8  | What are the desirable characteristics magnetic circuit..          | 02 |
| 9  | List the advantages of caad.                                       | 02 |
| 10 | Explain about synchronous impedance..                              | 02 |

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 What are design limitations in machines design. 10

OR

- 12 What is meant by specific loadings .what are the parameters depends on the designing of the machine . 10

- 14 Explain the square core over rectangular core of a transformer. 10

OR

- 14 Explain about choice of specific loading while designing a transformer. 10

- 15 What are the factors effects the choice of air gap length.. 10

OR

- 16 A 11KV . 3-phase ,6 pole,50HZ,220V star connected induction motor has 54 slots ,each containing 9 conductors calculate the values of bar and end ring currents. The no.f rotor bars is 64.the machine has efficiency of 0.86 and a p.f of 0.85.the rotor mmf maybe assume as a 85% of stator mmf.Also find the bar and end ring sections ,if the current density is 5A/mm<sup>2</sup>. 10

- 17 Explain about SCR in alternator. 10
- OR
- 18 Explain about choice of magnetic loading while designing synchronous machine. 10
- 19 Describe the salient features of computer aided design of electrical machine. 10
- OR
- 20 Explain how synthesis method solving electrical machine using CAD with flow chart. 10