

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2160911

Date: 08/05/2017

Subject Name: Computer Aided Analysis and Design for Electrical Engg.

Time: 10:30 AM to 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 Short Questions 14**
- 1 Define magnetic loading
 - 2 Define specific electric loading
 - 3 Give unit of current density
 - 4 Give unit of specific electric loading
 - 5 Write output power equation of DC machine
 - 6 Write equation of “ac”
 - 7 Write equation of “Bav”
 - 8 Define back pitch
 - 9 Define front pitch
 - 10 List types of armature winding
 - 11 Write general equation of output coefficient
 - 12 Write output power equation of three phase transformer
 - 13 State two factors on which air gap length of DC machine depend
 - 14 State two advantages of computer-aided design
- Q.2 (a) Explain significance of “Kg/KVA”. 03**
(b) State output data to be printed after execution of program. 04
(c) Draw flowchart for computer-aided optimal design of Transformer. 07
- OR**
- (c) Write a computer program for field winding design of DC generator. 07**
- Q.3 (a) Explain various modes of heat dissipation. 03**
(b) Explain ventilation schemes in transformers. 04
(c) Write a computer program for main dimensions of DC motor. 07
- OR**
- Q.3 (a) Discuss standard ratings of electrical machines. 03**
(b) What are the requirement of dummy coils and equalizer connection? 04
(c) Write a computer program for design HV winding of transformer. 07
- Q.4 (a) State disadvantages of Higher Specific Electric Loadings. 03**
(b) Explain advantages of Higher Specific Electric Loadings. 04
(c) Draw flowchart for computer-aided design of field regulator. 07
- OR**
- Q.4 (a) State the advantages of Finite Element Method. 03**
(b) Explain global coefficient matrix and elemental coefficient matrix. 04
(c) Explain various applications of FEM technique for design. 07
- Q.5 (a) Draw flowchart for computer design of main dimensions of DC generator. 07**
(b) Write a computer program for design of DC Series motor starter. 07
- OR**
- Q.5 (a) Draw flowchart for design of starter for DC motor. 07**
(b) Write a computer program for design of cooling tubes in transformer. 07