Total No. of Printed Pages:2

SUBJECT CODE NO:- P-6
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(EEP/EE/EEE) Examination MAY/JUNE-2016
Special Purpose Electrical Machines
(Revised)

[Time:Three Hours] **[Max Marks:80]**

"Please check whether you have got the right question paper."

N.B N.B i) Q.No.1 from section A and Q.No.6 from section B are compulsory.
ii) Attempt any two questions from the remaining questions in each section.
iii) Assume suitable data, if necessary.

Section A

Q.1 Solve any five. 10

a) What is meant by voltage regulation?
b) What is the maximum available power rating of any FHP motor?
c) Draw the equivalent circuit of self excited induction generator.
d) What is the meaning of "Radial Air gap"?
e) Give the two main application of Linear Induction Motor.
f) Write the two application of Reluctance motor.
g) Differentiate the Reluctance and switched reluctance motor.
h) What are the advantages of BLDC motor?

Q.2 a) Describe the operation of Multi Stack stepper motor. 08
b) A single sided LIM has 98 poles and pole pitch is 500mm. The LIM is used to replace a conveyor movement. Determine linear synchronous velocity and the speed of moving platform in kmph,if the frequency of supply is 60Hz. Take slip is 0.3. 07

Q.3 a) Differentiate between the operation and working of Axial and Radial air gap synchronous reluctance motors with neat sketches. 08
b) Explain the self excitation requirements in case of induction generator. 07

Q.4 a) Explain construction, operating principle and working of BLDC motor. 07
b) Explain the variable reluctance stepper motor in detail. 08

Q.5 a) Draw and explain load characteristics of variable reluctance motor. 08
b) Explain operation of PMSM motor. 07

Section B

Q.6 Solve any five. 10

a) Write two applications of high frequency transformer.
b) What is buck boost transformer?
c) What are the qualities of good weld?
d) What type of electric supply suitable for arc welding?
e) What are the advantages of using coated welding electrode?
f) What are the various reasons of heating element failure?

g) State Faraday's law of electrolysis.
h) Define current efficiency in electrolytic process.

Q.7 a) Explain with neat connection diagram, how a conventional single phase transformer can be used to measure current and voltage by buck or boost action. 08

b) Why does buck-boost transformer have four windings? Can buck-boost transformer be used on three phase system? 07

Q.8 a) What is the fundamental difference between electric arc welding and resistance welding? Explain with neat sketch, how the spot welding is carried out by spot welding machine. 08

b) Describe with neat sketches the various methods of electric resistance welding. Give its merits and demerits. 07

Q.9 a) What are the advantages of electric heating? Give the classification of various electric heating methods along with brief account of their working principle. 08

b) Explain the process of MIG welding. Draw neat sketches to support your explanation. 07

Q.10 a) Explain the terms used in Electrolytic process- 08

i. Energy efficiency
ii. Current efficiency
iii. Electrochemical equivalent
iv. Throwing power

b) What is the principle of Electro deposition? State and explain the factors on which the quality of electro deposition depends. 07