Registration No: | | | | | | | | | | |

Total Number of Pages: 03

B.Tech.
PEE3I103

3st Semester Regular/Back Examination 2017-18
ELECTRICAL MACHINES-I
BRANCH: ELECTRICAL
Time: 3 Hours
Max Marks: 100
Q.CODE: B1170

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions: *multiple type or dash fill up type*** (2 x 10)

a) The starting winding of a single-phase induction motor has poles that of main winding is
a) More b) Less c) Same d) None of option

b) The approximate efficiency of 3-phase, 50 Hz, 4-pole induction motor running at 1350 r.p.m. is
a) 90% b) 40% c) 65% d) None of the option

c) Calculate the core-area required for a 1600 kVA, 6600/440 V, 50Hz, single-phase core-type power transformer. Assume a maximum flux density of 1.2 Wb/m^2 and induced voltage per turn of 30 V.
a) 975 cm^2 b) 1100 cm^2 c) 1125 cm^2 d) 1224 cm^2

d) When a 3-phase induction motor is at no load, the slip is
a) 1 b) 0.5 c) 0.3 d) None of these

e) A transformer has 200 W at iron loss at full-load. The iron loss at half full-load will be.
a) 50 W b) 100 W c) 400 W d) 200 W

f) As compared to 3-phase induction motor, the efficiency of a single-phase induction motor for same rating is
a) More b) Less c) Same d) None of the option

g) The no-load input power to a transformer is practically equal to which loss in the transformer.
a) Iron b) Copper c) Eddy current d) Hysteresis

h) The magnetic flux in the core of a single-phase transformer is
a) Purely alternating one b) purely rotating one
c) partially alternating and partially rotating d) none of the option

i) What is the speed of the rotor of a 3-phase induction motor having synchronous speed of 1500 r.p.m.
a) 1320 r.p.m.b) 1440 r.p.m. c) 1420 r.p.m.d) None of the option

j) A 230/2300 V transformer takes no-load current of 5 A at 0.25 power factor lagging. The core loss is
a) 300.2 W b) 192.5 W c) 287.5 W d) 212.6 W

Q2 **Answer the following questions: *Short answer type*** (2 x 10)

a) What do you mean by cogging and crawling in an induction motor?

b) Why a transformer is rated in kVA?

c) What are the conditions for the parallel operation of a single phase transformer?