KATHMANDU UNIVERSITY
End Semester Examination [C]
April/May, 2023

Marks Scored:

Level : B.E.
Year : III

Course : EPEG 302
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date : 28 APR 2023

SECTION "A"
[20Q. × 0.5 = 10 marks]

Encircle the most appropriate option.

1. The principle of operation of a three phase induction motor is similar to that of a_____.
   a. Synchronous motor
   b. Repulsion start induction motor
   c. Transformer with a shorted secondary
   d. Capacitor start induction run motor

2. A 3 phase 6 pole, 50 Hz induction motor runs at speed of 990 rpm. The rotating field produced by the stator rotates at speed of _____ rpm with respect to the rotor
   a. 1000 b. 50 c. 500 d. Zero

3. The crawling of an induction motor is caused by _____.
   a. High loads
   b. Low voltage supply
   c. Improper design of machine
   d. Harmonics developed in motor

4. Pull out torque of a squirrel cage induction motor occurs at that value of slip where rotor power factor equals _____.
   a. Unity b. 0.866 c. 0.707 d. 0.5

5. A double squirrel cage induction motor _____.
   a. Two rotors moving in opposite direction
   b. Two parallel windings in rotor
   c. Two parallel windings in stator
   d. Two series winding in rotor

6. A squirrel cage induction motor runs at constant speed only so long as _____.
   a. Torque developed by it remains constant
   b. Its supply voltage remains constant
   c. Its torque exactly equals the mechanical load
   d. Stator flux remains constant

7. The torque developed by a here phase induction motor depends upon _____.
   a. Speed, frequency and number of poles
   b. Voltage, current and stator impedances
   c. Synchronous speed, rotor speed and frequency
   d. Rotor emf, rotor current and rotor pf

8. The chemical used in breather of transformer should have the quality of _____.
   a. Ionizing air
   b. Cleansing the transformer oil
   c. Absorbing moisture
   d. Cooling the transformer oil

9. The function of a radiator in transformer is _____.
   a. To protect against internal fault
   b. Expand and contrast the transformer oil subjected to temperature variation
   c. To reduce copper as well as core losses
   d. To cool the transformer oil

10. The neutral terminal is fundamental to three phase sat to star connection for _____.
    a. Suppression of harmonics
    b. Passage of unbalanced currents due to unbalanced loads
    c. Provision of dual electric service
    d. Balancing of phase voltage with respect to line voltages

11. A load of 500 kVA at 0.8 power factor lagging is to be shared by two three phase transformers A and B of equal ratings. If the equivalent delta impedances as referred to secondary are $(2+j6)\Omega$ for A and $(2+j5)\Omega$ for B, the load supplied by transformer A is __.
    a. $230.7 < 38.7^0$ b. $230.7 < -38.7^0$ c. $270 < 40.28^0$ d. $270 < -40.28^0$

12. The tapping are provided in three phase transformer at _____.
    a. At the phase end of LV side b. At the phase end of HV side
    c. At the neutral side end of HV side d. At the middle of HV side

13. The voltage regulation of an alternator having 0.75 leading power factor load, no load emf of 2400 V and rated terminal voltage of 3000 V is _____.
    a. 20 percent b. -20 percent c. 150 percent d. -26.7 percent

14. With a load power factor of leading, the effect of armature reaction on the main field flux of an alternator is _____.
    a. Distortional b. Magnetizing c. Demagnetizing d. Nominal

15. A synchronous motor can be used a synchronous capacitor when it is _____.
    a. Under loaded b. Over loaded c. Under excited d. Overexcited

16. A synchronous machine is called doubly excited machine because _____.
    a. It can be overexcited
    b. It has two set of rotor poles
    c. Both its stator and rotor are excited
    d. It needs twice the normal exciting current

17. An alternator is connected to an infinite busbars. Its excitation is decreased while its driving power remains constant. This will result in _____.
    a. Less lagging power factor b. More lagging power factor
    c. Terminal voltage drop d. Terminal voltage increase

18. Two steam turbines driven identical turbo generators are running in proper synchronism and carry equal loads. If excitation of one generator is decreased without changing its input steam turbine supply _____.
    a. It will keep supplying same load b. kVAR supplied by it would decrease
    c. Its power factor will increase d. kVA supplied by it would decrease

19. Two alternators are running in proper synchronism and if the voltage of machine is suddenly increased _____.
    a. The machines will stop
    b. The machines will burn out
    c. Synchronizing torque will be produced to restore further synchronism
    d. One of the machine will operate as a motor

20. The oscillation in a synchronous motor can be damped out by _____.
    a. Maintaining constant excitation
    b. Running the motor on leading power factors
    c. Providing damper bars in the rotor pole faces
    d. Oscillation cannot be damped out