ONGC GT Electrical Previous Question Papers

Q.1 The two windings of a transformer is
(A) conductively linked.
(B) inductively linked.
(C) not linked at all.
(D) electrically linked.
Ans : B

Q.2 A salient pole synchronous motor is running at no load. Its field current is switched off. The motor will
(A) come to stop.
(B) continue to run at synchronous speed.
(C) continue to run at a speed slightly more than the synchronous speed.
(D) continue to run at a speed slightly less than the synchronous speed.
Ans: B

Q.3 The d.c. series motor should always be started with load because
(A) at no load, it will rotate at dangerously high speed.
(B) it will fail to start.
(C) it will not develop high starting torque.
(D) all are true.
Ans: A

Q.4 The frequency of the rotor current in a 3 phase 50 Hz, 4 pole induction motor at full load speed is about
(A) 50 Hz.
(B) 20 Hz.
(C) 2 Hz.
(D) Zero.
 Ans: C

Q.5 In a stepper motor the angular displacement
(A) can be precisely controlled.
(B) it cannot be readily interfaced with micro computer based controller.
(C) the angular displacement cannot be precisely controlled.
(D) it cannot be used for positioning of work tables and tools in NC machines.
 Ans: A
Q.6 The power factor of a squirrel cage induction motor is
(A) low at light load only.
(B) low at heavy load only.
(C) low at light and heavy load both.
(D) low at rated load only.
Ans: A

Q.7 The generation voltage is usually
(A) between 11 KV and 33 KV.
(B) between 132 KV and 400 KV.
(C) between 400 KV and 700 KV.
(D) None of the above.
 Ans: A

Q.8 When a synchronous motor is running at synchronous speed, the damper winding produces
(A) damping torque.
(B) eddy current torque.
(C) torque aiding the developed torque.
(D) no torque.
Ans: D

Q.9 If a transformer primary is energised from a square wave voltage source, its output voltage will be
(A) A square wave.
(B) A sine wave.
(C) A triangular wave.
(D) A pulse wave.
 Ans: A

Q.10 In a d.c. series motor the electromagnetic torque developed is proportional to
(A) I_a
(B) $(I_a)^2$
(C) $1/I_a$
(D) $1/(I_a)^2$
 Ans: B

Q.11 In a 3 – phase induction motor running at slip 's' the mechanical power developed in terms of air gap power
(A) $(s-1)P_g$
(B) $P_g/(1-s)$
(C) $(1-s)P_g$
(D) $s.P_g$
 Ans: C

Q.12 In a 3 – phase induction motor the maximum torque
(A) is proportional to rotor resistance r_2
(B) does not depend on r_2
(C) is proportional to $sqrt(r_2)$
(D) is proportional to $(r_2)^2$
 Ans: B

Q.13 In a d.c. machine, the armature mmf is
(A) stationary w.r.t. armature.
(B) rotating w.r.t. field.
(C) stationary w.r.t. field.
(D) rotating w.r.t. brushes.
 Ans: C

Q.14 In a transformer the voltage regulation will be zero when it operates at
(A) unity p.f.
(B) leading p.f.
(C) lagging p.f.
(D) zero p.f. leading.
 Ans: B

Q.15 The maximum power in cylindrical and salient pole machines is obtained respectively at load angles of
(A) $90^o, 90^o$
(B) $<90^o, 90^o$
(C) $90^o, >90^o$
(D) $90^o, <90^o$
Ans: D

Q.16 The primary winding of a 220/6 V, 50 Hz transformer is energised from 110 V, 60 Hz supply. The secondary output voltage will be
(A) 3.6 V.
(B) 2.5 V.
(C) 3.0 V.
(D) 6.0 V.
Ans: C

Q.17 The emf induced in the primary of a transformer
(A) is in phase with the flux.
(B) lags behind the flux by 90 degree.
(C) leads the flux by 90 degree.
(D) is in phase opposition to that of flux.
Ans: C

Q.18 The relative speed between the magnetic fields of stator and rotor under steady state operation is zero for a
(A) dc machine.
(B) 3 phase induction machine.
(C) synchronous machine.
(D) single phase induction machine.
Ans: all options are correct

Q.19 The current from the stator of an alternator is taken out to the external load circuit through
(A) slip rings.
(B) commutator segments.
(C) solid connections.
(D) carbon brushes.
 Ans: C

Q.20 A motor which can conveniently be operated at lagging as well as leading power factors is the
(A) squirrel cage induction motor.
(B) wound rotor induction motor.
(C) synchronous motor.
(D) DC shunt motor.
Ans: C

Q.21 A hysteresis motor
(A) is not a self-starting motor.
(B) is a constant speed motor.
(C) needs dc excitation.
(D) can not be run in reverse speed.
 Ans: B

Q.22 The most suitable servomotor for low power applications is
(A) a dc series motor.
(B) a dc shunt motor.
(C) an ac two-phase induction motor.
(D) an ac series motor.
Ans: B

Q.23 The size of a conductor used in power cables depends on the
(A) operating voltage.   (B) power factor.
(C) current to be carried.   (D) type of insulation used.Ans: C Q.24 Out of the following
methods of heating the one which is independent of supply frequency is
(A) electric arc heating   (B) induction heating   (C) electric resistance heating   (D)
dielectric heating
Ans: C

Q.25 A two-winding single phase transformer has a voltage regulation of 4.5% at full-load and unity power-factor.
At full-load and 0.80 power-factor lagging load the voltage regulation will be
(A) 4.5%.   (B) less than 4.5%.   (C) more than 4.5%.   (D) 4.5% or more than 4.5%.
Ans: C

Q.26 In a dc shunt motor the terminal voltage is halved while the torque is kept constant. The resulting approximate
variation in speed " ω " and armature current " I_a " will be
(A) Both ω and I_a are doubled.
(B) ω is constant and I_a is doubled
(C) w is doubled while I_a is halved
(D) w is constant but I_a is halved
Ans: B

Q.27 A balanced three-phase, 50 Hz voltage is applied to a 3 phase, 4 pole, induction motor. When the motor is
delivering rated output, the slip is found to be 0.05. The speed of the rotor m.m.f. relative to the rotor structure is
(A) 1500 r.p.m.
(B) 1425 r.p.m.
(C) 25 r.p.m.
(D) 75 r.p.m.
 Ans: D

Q.28 An alternator is delivering rated current at rated voltage and 0.8 power-factor lagging case. If it is required
to deliver rated current at rated voltage and 0.8 power-factor leading, the required excitation will be
(A) less.
(B) more.
(C) more or less.
(D) the same.
Ans: B

Q.29 A ceiling fan uses
(A) split-phase motor.

(B) capacitor start and capacitor run motor.
(C) universal motor.
(D) capacitor start motor.
 Ans: D

Q.30 A stepper motor is
(A) a dc motor.   (B) a single-phase ac motor.   (C) a multi-phase motor.   (D) a two phase motor.
Ans: D

Q.31 The 'sheath' is used in cable to
(A) provide strength to the cable.
(B) provide proper insulation.
(C) prevent the moisture from entering the cable.
(D) avoid chances of rust on strands.
 Ans: A

Q.32 The drive motor used in a mixer-grinder is a
(A) dc motor.   (B) induction motor.   (C) synchronous motor.   (D) universal motor.
Ans: DQ.33 A 1:5 step-up transformer has 120V across the primary and 600 ohms resistance across the secondary.
Assuming 100% efficiency, the primary current equals (A) 0.2 Amp.   (B) 5 Amps.   (C) 10 Amps.
(D) 20 Amps.
Ans: A
Q.34 A dc shunt generator has a speed of 800 rpm when delivering 20 A to the load at the terminal voltage of
220V. If the same machine is run as a motor it takes a line current of 20A from 220V supply. The speed of the
machine as a motor will be
(A) 800 rpm.   (B) more than 800 rpm.   (C) less than 800 rpm.   (D) both higher or lower than 800
rpm.
 Ans: C

Q.35 A 50 Hz, 3-phase induction motor has a full load speed of 1440 r.p.m. The number of poles of the motor are
(A) 4.   (B) 6.   (C) 12.   (D) 8.
 Ans: A