

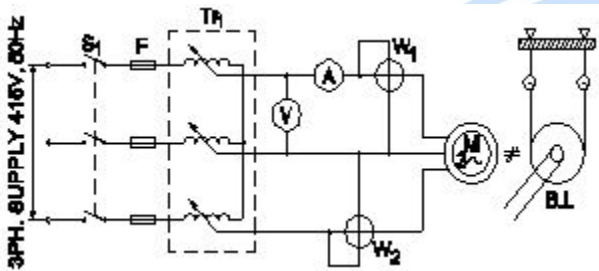
AC Three Phase Motor

1). What is the formula to calculate pitch factor?

- (A) Pitch Factor = Pole pitch/Winding pitch
- (B) Pitch Factor = Winding pitch/Pole pitch
- (C) Pitch Factor = Number of slots/Number of poles
- (D) Pitch Factor = Number of Poles/Number of Slots

Correct Answer: (B)

2). What is the name of the test as shown in the circuit?



- (A) No load test
- (B) Open circuit test
- (C) Blocked rotor test
- (D) Polarity test

Correct Answer : C

3). Which fault condition the thermal overload relay protects A.C induction motor?

- (A) Short circuit
- (B) Open circuit
- (C) Over load
- (D) No load

Correct Answer : C

4). What is the type of A.C motor stator winding as shown in the figure?



- (A) Single layer basket winding
- (B) Double layer basket winding
- (C) Involute coil winding
- (D) Diamond coil winding

Correct Answer : A

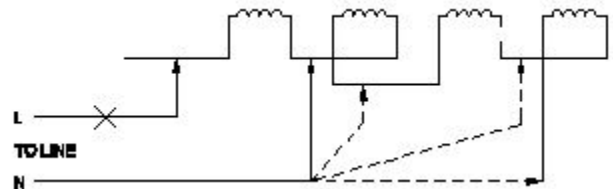
5). Which type of motor is used to provide high starting torque at variable speed?

- (A) Universal motor
- (B) Permanent capacitor motor
- (C) 3 Phase slip ring induction motor
- (D) 3 Phase single squirrel cage induction motor

Correct Answer : C

6). Which type of testing of winding is illustrated as shown in the figure?

[Image showing a circuit diagram with coils connected to Line (L) and Neutral (N) with test probes]



- (A) Polarity test
- (B) Resistance test
- (C) Short circuit test
- (D) Voltage drop test

Correct Answer : B

7). Which device is used to test stator winding short and open fault?

- (A) Tong Tester
- (B) Internal Growler
- (C) External Growler
- (D) Digital multimeter

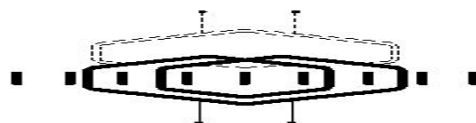
Correct Answer : B

8). Which type of starter is used for 3 phase slip ring induction motor?

- (A) Auto transformer starter
- (B) Star - Delta starter
- (C) Rotor resistance starter
- (D) Direct on line starter

Correct Answer : C

9). What is the name of the winding as shown in the figure?

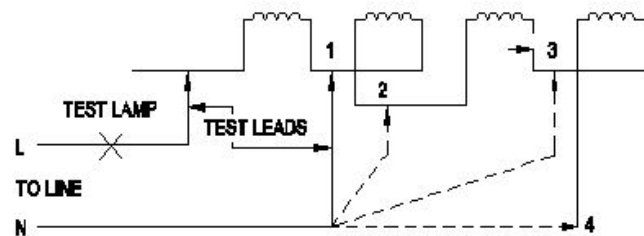


- (A) Skew winding
 - (B) Skein winding
 - (C) Involute coil winding
 - (D) Diamond coil winding
- Correct Answer : B

- 10). Which speed is called as synchronous speed in 3 phase induction motor?
- (A) No load speed
 - (B) Full load speed
 - (C) Rotating magnetic field speed
 - (D) Relative speed between stator and rotor
- Correct Answer : C

- 11). What is the number of coils per phase per pair of poles of 3 phase motor having 2 pole, 24 slots, 12 coils?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
- Correct Answer : D

- 12). What is the name of the winding test as shown in the circuit?



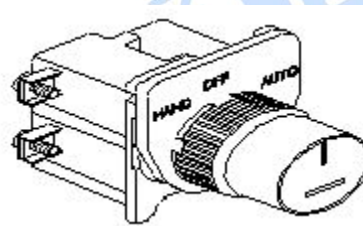
- (A) Short circuit test
 - (B) Polarity test
 - (C) Insulation test
 - (D) Continuity test
- Correct Answer :D

- 13). Which formula is used to calculate the percentage in slip of an AC 3 phase induction motor?
- (A) $N_s - N_r / N_s * 100$
 - (B) $N_r - N_s / N_s * 100$
 - (C) $N_s - N_r / N_r * 100$
 - (D) $N_r - N_s / N_r * 100$
- Correct Answer: (A)

- 14). What is the phase displacement between winding in 3 phase motor?
- (A) 90°
 - (B) 120°
 - (C) 180°
 - (D) 360°
- Correct Answer : B

- 15). Which method is used to control the speed of 3 phase induction motor from stator side?
- (A) By injecting frequency in rotor circuit
 - (B) By rotor rheostat control
 - (C) By injecting emf in rotor circuit
 - (D) By changing the applied frequency
- Correct Answer : D

- 16). Which type of handle design of rotary switch is illustrated as shown in the figure?

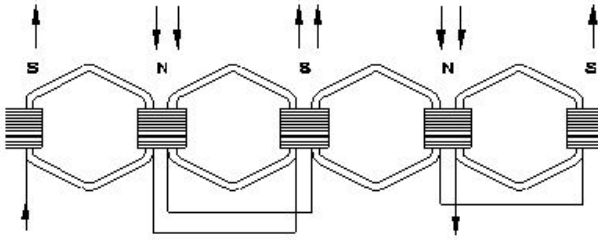


- (A) Knob
 - (B) Lever
 - (C) Coin slot
 - (D) Key operation
- Correct Answer : C

- 17). What happens to a 3 phase induction motor, if one phase fails during starting?
- (A) Motor does not start
 - (B) Motor runs in high speed continuously
 - (C) Motor runs and draws less current
 - (D) Motor continues to run with regular speed
- Correct Answer : A

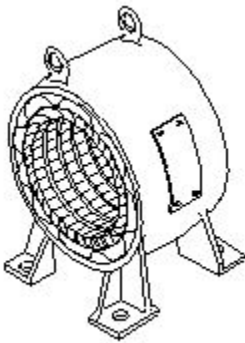
- 18). Which formula is used to calculate the total electrical degree in stator of an A.C motor?
- (A) Total electrical degree = $180^\circ / \text{No. of slots}$
 - (B) Total electrical degree = $180^\circ \times \text{No. of slots}$
 - (C) Total electrical degree = $180^\circ / \text{No. of poles}$
 - (D) Total electrical degree = $180^\circ \times \text{No. of poles}$
- Correct Answer : D

19). What is the name of AC coil winding as shown in the figure?



- (A) Half coil winding
 - (B) Whole coil winding
 - (C) Singal layer winding
 - (D) Double layer winding
- Correct Answer : B

20). What is the name of the part as shown in the figure?



- (A) Rotor
 - (B) Stator
 - (C) Front end cover
 - (D) Back end cover
- Correct Answer : B

21). How pole pitch is measured in terms of slots in AC winding?

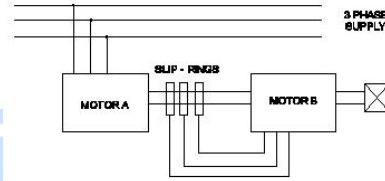
- (A) Total electrical degree/Number of slots
 - (B) Number of slots/Total electrical degree
 - (C) No. of slots in the stator/No. of poles
 - (D) No. of poles/No. of slots in the stator
- Correct Answer : C

22). What is the purpose of using thermal relay in addition to fuse in A.C motor circuit?

- (A) Protect from heavy earth fault
- (B) Protect against high voltage

- (C) Protects against continuous over loading
 - (D) Protect against dead short circuit
- Correct Answer : C

23). What is the name of the speed control method as shown in the figure?



- (A) Cascade operation
 - (B) By rotor rheostat control
 - (C) By injecting Emf in the rotor circuit
 - (D) By changing the number of pole
- Correct Answer : A

24). Which instrument is used to measure insulation resistance of a 3 phase induction motor?

- (A) Megger
 - (B) Multimeter
 - (C) Shunt type ohmmeter
 - (D) Series type ohmmeter
- Correct Answer : A

25). Determine the torque in newton metres produced by a 7.5 HP squirrel cage motor rotating at 1440 rpm?

- (A) 21.63 Nm
 - (B) 24.4 Nm
 - (C) 33.05 Nm
 - (D) 36.6 Nm
- Correct Answer : D

26). What refers coil in AC winding?

- (A) Number of turns connected in series
 - (B) Number of turns connected in parallel
 - (C) Number of turns under two similar poles
 - (D) Number of turns under two dissimilar poles
- Correct Answer : A

27). Which loss of 3 phase induction motor is determined by the blocked rotor test?

- (A) Copper loss
- (B) Friction loss
- (C) Hysteresis loss

(D) Eddy current loss

Correct Answer : A

28). Why the pre heating is necessary for the rewound AC motors before varnishing?

- (A) To dry out the varnish quickly in winding
- (B) To easy flow of varnish in the winding
- (C) To decrease the insulation resistance value
- (D) To dry out the moisture in the windings

Correct Answer : D

29). What is the rotor frequency of a 3 phase squirrel cage induction motor at the time of starting?

- (A) Equal to the supply frequency
- (B) 3 times less than the supply frequency
- (C) 3 times more than the supply frequency
- (D) $\sqrt{3}$ times less than the supply frequency

Correct Answer : A

30). Why the external resistance is included in the rotor circuit at starting through 3 phase slipring induction motor starter?

- (A) To get high running torque
- (B) To get high starting torque
- (C) To reduce the load current
- (D) To get increased speed at starting

Correct Answer : B

31). Why the rotor bars are mounted in a slightly skewed position in 3 phase motor?

- (A) Generate minimum flux
- (B) Reduce the stray losses
- (C) Maintain the rotor speed constant
- (D) Produce more uniform rotor field and torque

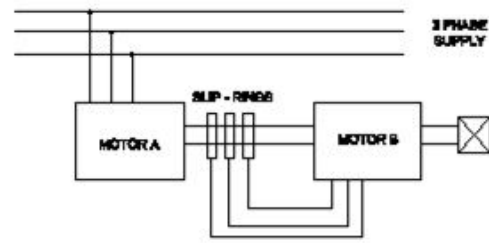
Correct Answer : D

32). Which method of speed control is only applicable for 3 phase slipring induction motor?

- (A) Cascade operation method
- (B) Rotor rheostat speed control
- (C) Changing the applied frequency method
- (D) Changing the number of stator poles method

Correct Answer : B

33). What is the speed control method of 3 phase induction motor?



- (A) Cascade operation method
- (B) Rotor rheostat control method
- (C) Changing applied voltage method
- (D) Injecting emf in rotor circuit method

Correct Answer : A

34). What is the effect, if the rotor windings of a slipring induction motor is open circuited at starting?

- (A) Will not run
- (B) Runs at slow speed
- (C) Runs at very high speed
- (D) Runs but not able to pull load

Correct Answer : A

35). Which method of speed control can give two or more fixed synchronous speeds in the 3 phase motor?

- (A) By rotor rheostat control
- (B) By changing applied frequency
- (C) By changing the applied voltage
- (D) By changing the number of stator poles

Correct Answer : D

36). What is the cause for vibration in motor?

- (A) High voltage
- (B) Low voltage
- (C) Open circuited winding
- (D) Loose foundation

Correct Answer : D

37). Which is the speed of the rotating magnetic field of a 3 phase squirrel cage induction motor?

- (A) Rotor speed
- (B) Slip speed
- (C) Actual speed
- (D) Synchronous speed

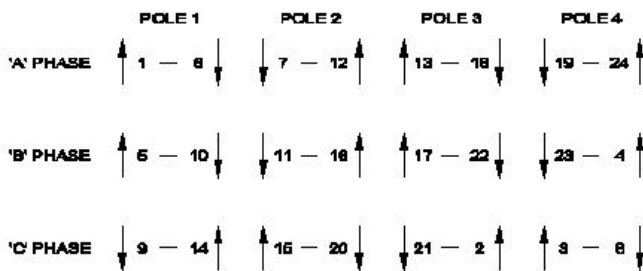
Correct Answer : D

38). Which type of test is conducted using internal growler in AC motor winding?

- (A) Ground test
- (B) Polarity test
- (C) Continuity test
- (D) Short circuit test

Correct Answer : D

39). What is the name of the diagram used for 3phase motor winding as shown in the figure?



- (A) Ring diagram
- (B) Development diagram
- (C) Coil connection diagram
- (D) End connection diagram

Correct Answer : A

40). Which test in winding is illustrated as shown in the figure?

- (A) Polarity test
- (B) Ground test
- (C) Continuity test
- (D) Short circuit test

Correct Answer : A

41). What is the fuse rate to run a 10 HP in three phase induction motor at full load?

- (A) 10 A
- (B) 15 A
- (C) 25 A
- (D) 30 A

Correct Answer : C

42). Calculate the percentage slip in a 3 phase induction motor having 6 poles with a frequency of 50 Hertz running with the actual speed of 960 rpm?

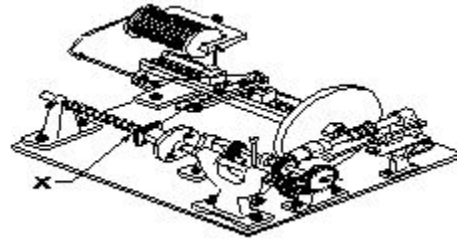
- (A) 2%
- (B) 3%

(C) 4%

(D) 5%

Correct Answer : C

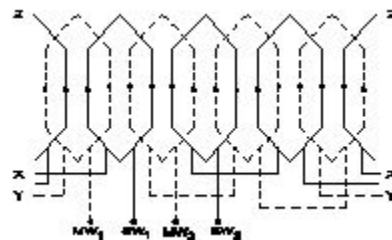
43). What is the name of the part marked as 'X' of the winding machine as shown in the figure?



- (A) Mandrel
- (B) Wire feed
- (C) Wire guides
- (D) Spool carrier

Correct Answer : A

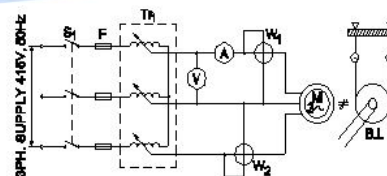
44). What is the name of the coil winding as shown in the figure?



- (A) Concentric coil winding
- (B) Distributed coil winding
- (C) Mesh shaped coil winding
- (D) Diamond mesh shaped coil winding

Correct Answer : D

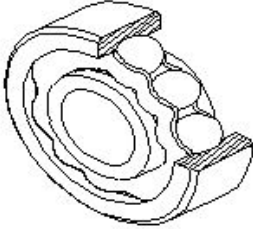
45). What is the name of the test as shown in the circuit?



- (A) No load test
- (B) Open circuit test
- (C) Blocked rotor test

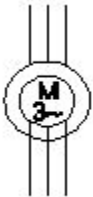
(D) Polarity test
Correct Answer : C

46). What is the name of the bearing as shown in the figure?



(A) Roller bearing
(B) Ball bearing
(C) Bush bearing
(D) Thrust bearing
Correct Answer : B

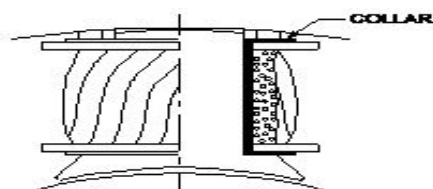
47). What is the name of the symbol as shown in the figure?



(A) Induction motor, three phase squirrel cage
(B) Induction motor, three phase with wound rotor
(C) Induction motor, three phase star connected
(D) Induction motor, three phase delta connected
Correct Answer : B

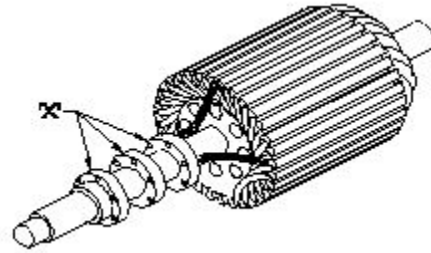
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(B) Total electrical degree = $180^\circ \times \text{No. of slots}$
(C) Total electrical degree = $180^\circ / \text{No. of poles}$
(D) Total electrical degree = $180^\circ \times \text{No. of poles}$
Correct Answer : D

49). What is the function of collar as shown in the figure?



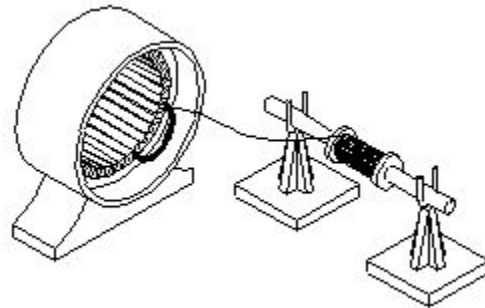
(A) Provides insulation around field
(B) Provides insulation for coil tapping
(C) Helps tightening material for flange
(D) Provides insulation for heat transfer from coil
Correct Answer : A

50). What is the name of the part marked as 'X' as shown in the figure?



(A) Shaft
(B) Brushes
(C) Bearings
(D) Slip rings
Correct Answer : D

51). Identify the type of rewinding process given below?



(A) Hand winding
(B) Skein winding
(C) Former winding
(D) Machine winding
Correct Answer : A

