Started on	Tuesday, 5 March 2024, 5:02 PM
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Time taken	12 secs
Marks	0.00/42.00
Grade	**0.00** out of 10.00 (**0**%)

Question **1**

Not answered

Marked out of 1.00

A single phase winding produces:-

- a.   c)   a steady magnetic field;
- b.   d)   an alternating magnetic field.
- c.   a)   a stationary magnetic field;
- d.   b)   a rotating magnetic field;

Your answer is incorrect.

The correct answer is:
d)   an alternating magnetic field.

Question **2**

Not answered

Marked out of 1.00

To develop a rotating magnetic field a split phase induction motor simulates a:-

- a. Series motor

    c)   series universal motor;

- b. a)   two phase motor;
- c. (d) shaded pole motor.
- d. b)   three phase motor;

Your answer is incorrect.

The correct answer is:
a)   two phase motor;

Question **3**

Not answered

Marked out of 1.00

If motor load is reduced from full load to three quarters of full load you would expect that:-

- a. a)   speed would increase and current would increase;
- b. c)   speed would increase and current would decrease;
- c. b)   speed would decrease and current would decrease;
- d.)   speed would decrease and current would increase;

Your answer is incorrect.

d

The correct answer is:
c)   speed would increase and current would decrease;

Question **4**

Not answered

Marked out of 1.00

The angle of phase displacement between the start and run winding currents of a split phase induction motor is approximately:-

- a. c) 90 degrees;
- b. d) 120 degrees.
- c. b) 30 degrees;
- d. a) 10 degrees;

Your answer is incorrect.

The correct answer is:

c) 90 degrees;

Question **5**

Not answered

Marked out of 1.00

The single phase split phase motor is reversed by:-

- a. c) reversing the armature connection;
- b. b) reversing the auxiliary winding connection;
- c. a) reversing the supply connections;
- d. d) reversing both the auxiliary winding and armature connections.

Your answer is incorrect.

The correct answer is:

b) reversing the auxiliary winding connection;

Question **6**

Not answered

Marked out of 1.00

If the centrifugal switch on a split phase motor goes permanently open circuit:-

- a. b) the start winding will burn out;
- b. c) the start capacitor will burn out;
- c. d) starting torque will drop to about half of normal value.
- d. a) the motor will not start;

Your answer is incorrect.

The correct answer is:
a) the motor will not start;

Question **7**

Not answered

Marked out of 1.00

The auxiliary winding switch should open when:-

- a. b) rated speed is about 25 percent of synchronous speed;
- b. c) rotor speed is about 75 percent of synchronous speed;
- c. a) rotor speed is about 25 percent of rated speed;
- d. d) slip speed is about 75 percent of synchronous speed.

Your answer is incorrect.

The correct answer is:
c) rotor speed is about 75 percent of synchronous speed;

Question **8**

Not answered

Marked out of 1.00

The run winding in a split phase induction motor is placed in:-

○ a.　d)　　the bottom of the slot to increase inductance.

○ b.　)　　the top of the slot to decrease inductance

○ c.　c)　　the bottom of the slot to decrease inductance;

○ d.　a)　　the top of the slot to increase inductance;

Your answer is incorrect.

The correct answer is:
d)　　the bottom of the slot to increase inductance.

Question **9**

Not answered

Marked out of 1.00

Variable frequency speed control of split phase motors is not generally used because:-

○ a.　b)　　the starting switch might not operate;

○ b.　a)　　 the capacitor start motor has higher torque;

○ c.　d)　　pole changing gives smoother speed changes.

○ d.　c)　　 voltage speed control in more efficient;

Your answer is incorrect.

The correct answer is:
b)　　the starting switch might not operate;

Question **10**

Not answered

Marked out of 1.00

The auxiliary winding of a split phase motor always has:-

- a.   c)   a lower resistance than the main winding;
- b.   a)   a lower power factor than the main winding;
- c.   d)   a higher power factor than the main winding.
- d.   b)   a higher resistance than the main winding;

Your answer is incorrect.

The correct answer is:

c)   a lower resistance than the main winding;

Question **11**

Not answered

Marked out of 1.00

A single phase 240 volt 50 hertz 4 pole split phase motor runs at rated speed of 1425 r.p.m. For full load determine:-

a)   the synchronous speed of the motor;

b)   the slip speed;

c)   the slip percent;

d)   the rotor frequency.

- a.   (1 500 r.p.m.) (75 r.p.m..) (5%.) (2.5Hz)
- b.   (1 200 r.p.m.) (100 r.p.m..) (6%.) (7.5Hz)
- c.   (750 r.p.m.) (75 r.p.m..) (3%.) (2.5Hz)

Your answer is incorrect.

The correct answer is:

(1 500 r.p.m.) (75 r.p.m..) (5%.) (2.5Hz)

Question **12**

Not answered

Marked out of 1.00

The single phase induction motor that is commonly used to drive cooling fans in small appliances is the:-

○ a.　d)　　split phase induction motor.

○ b.

　　　　b)　　shaded pole motor;

○ c.　a)　　 permanently split capacitor motor;

○ d.　c)　　series universal motor;

Your answer is incorrect.

The correct answer is:

b)　　shaded pole motor;

Question **13**

Not answered

Marked out of 1.00

A capacitor start induction motor has an open circuited capacitor. The motor will:-

○ a.　a)　　start with reduced torque;

○ b.　b)　　fail to start;

○ c.　d)　　start in the reverse direction.

○ d.　c)　　start normally but stop when the centrifugal switch operates;

Your answer is incorrect.

The correct answer is:
b)　　fail to start;

Question **14**

Not answered

Marked out of 1.00

Impedance protection of shaded pole motors:-

○ a.   c)   reduces unwanted tripping of overload devices

○ b.   d)   limits motor current on no load.

○ c.   a)   reduces overheating when stalled;

○ d.   b)   reduces the starting current;

Your answer is incorrect.

;

The correct answer is:

a)   reduces overheating when stalled;

Question **15**

Not answered

Marked out of 1.00

Electrolytic capacitors are used in starting circuits:-

○ a.   d)   because of their high dielectric strength.

○ b.   b)   because of their small size;

○ c.   c)   because they are continuously rated;

○ d.   a)   because of their low leakage current;

Your answer is incorrect.

The correct answer is:

d)   because of their high dielectric strength.

Question **16**

Not answered

Marked out of 1.00

On a capacitor start, capacitor run induction motor the start capacitor may be identified as having:-

○ a.   c)   the lower capacitance and a short term rating;

○ b.   a)   the lower capacitance and a continuous rating;

○ c.   b)   the higher capacitance and a continuous rating;

○ d.   d) the higher capacitance and a short term rating

Your answer is incorrect.

The correct answer is:
d) the higher capacitance and a short term rating

Question **17**

Not answered

Marked out of 1.00

1.   A single phase 240 volt 50 hertz capacitor start induction motor has a run winding which takes 4 amperes at 0.6 lag power factor at start while the start winding/capacitor takes 3 amperes at 0.8 lead power factor with . . 35uF capacitor. Determine:-

a)   the phase angle of each current and the angle between them;

b)   the total current taken by the motor at starting.

c)   the voltage across the 35uF capacitor.

○ a. $(36.8^O\text{lag}, 53.1^O\text{lead}, 90^O)$ (5A.) (450V.)

○ b. $(53.1^O\text{lag}, 36.9^O\text{lead}, 90^O)$ (5A.) (273V.)

○ c. $(36.8^O\text{lag}, 53.1^O\text{lead}, 90^O)$ (3A.) (273V.)

Your answer is incorrect.

The correct answer is:
$(53.1^O\text{lag}, 36.9^O\text{lead}, 90^O)$ (5A.) (273V.)

Question **18**

Not answered

Marked out of 1.00

The series universal motor is reversed by:-

○ a. d) reversing the armature connections.

○ b. c) physically reversing the rotor in the field;

○ c. b) reversing the armature and field connections;

○ d. a) reversing the supply connections;

Your answer is incorrect.

The correct answer is:

d) reversing the armature connections.

Question **19**

Not answered

Marked out of 1.00

1. A series universal motor driving a constant torque load has its armature voltage reduced from 200 volts to 100 volts using a series resistor. The result will be:-

○ a. a) motor speed will remain unchanged

○ b. d) motor current will decrease to half rated current.

○ c. b) motor speed will double;

○ d. c) motor speed will drop to half rated speed;

Your answer is incorrect.

The correct answer is:

c) motor speed will drop to half rated speed;

Question **20**

Not answered

Marked out of 1.00

For a given load the constant speed of a motor occurs when:-

○ a.   a)   the motor output torque equals the load input torque;

○ b.   a)   the input power is equal to the output power;

○ c.   b)   the efficiency of the motor is at a maximum;

○ d.   a)   the motor slip is at a maximum.

Your answer is incorrect.

c)   the motor output torque equals the load input torque;

d)   the motor slip is at a maximum.

The correct answer is:

a)   the motor output torque equals the load input torque;

Question **21**

Not answered

Marked out of 1.00

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1.   A 240 volt series universal motor drives a constant torque load at rated load and rated current of 7 amperes at 4 000 r.p.m. If speed is to be reduced to 2 500 r.p.m. determine:-

a)   the voltage required (hint: at constant torque, speed is proportional to voltage);

b)   the value of series resistance required to drop motor voltage to this value.

○ a.   (300V) (25 Ohm)

○ b.   (250V) (18.86 Ohm)

○ c.   (150V) (12.86 Ohm)

Your answer is incorrect.

The correct answer is:
(150V) (12.86 Ohm)

Question **22**

Not answered

Marked out of 1.00

---

1.   A 240 volt series universal motor drives a constant torque load at rated load and rated current of 7 amperes at 4 000 r.p.m. If speed is to be reduced to 2 500 r.p.m. determine:-

a)   the voltage required (hint: at constant torque, speed is proportional to voltage);

b)   the value of series resistance required to drop motor voltage to this value.

○ a.   (250V) (18.86 Ohm)

○ b.   (300V) (25 Ohm)

○ c.   (150V) (12.86 Ohm)

Your answer is incorrect.

The correct answer is:
(150V) (12.86 Ohm)

Question **23**

Not answered

Marked out of 1.00

Alternators are generally run at a constant speed to maintain:-

○ a.   d)   a constant output frequency.

○ b.   c)   maximum efficiency;

○ c.   b)   a constant load current;

○ d.   a)   a constant output voltage;

Your answer is incorrect.

The correct answer is:

d)   a constant output frequency.

Question **24**

Not answered

Marked out of 1.00

Low speed rotating field alternators use:-

○ a.   c)   salient poles rotors with two poles

○ b.   d)   cylindrical rotors with two poles

○ c.   a)   salient pole rotors with many poles;

○ d.   b)   cylindrical rotors with many poles

Your answer is incorrect.

The correct answer is:

a)   salient pole rotors with many poles;

Question **25**

Not answered

Marked out of 1.00

The armature winding in a rotating field alternator is placed:-

○ a.   d)   around the poles on the solid rotor core.

○ b.   a)   in slots in the laminated stator core;

○ c.   b)   in slots in the solid stator core;

○ d.   c)   in slots in the laminated rotor core;

Your answer is incorrect.

The correct answer is:
d)   around the poles on the solid rotor core.

Question **26**

Not answered

Marked out of 1.00

The armature winding in a rotating field alternator is placed:-

○ a.   c)   in slots in the laminated rotor core;

○ b.   a)   in slots in the laminated stator core;

○ c.   d)   around the poles on the solid rotor core.

○ d.   b)   in slots in the solid stator core;

Your answer is incorrect.

The correct answer is:
d)   around the poles on the solid rotor core.

Question **27**

Not answered

Marked out of 1.00

Most three phase alternators have their armature windings:-

    a.   c)   connected in star to allow earthing of the star point;

    b.   a)   connected to a d.c. supply for excitation;

    c.   b)   connected to an a.c. supply for excitation

    d.   d)

          a)   connected in delta to increase the generated output voltage.

          a)   connected in delta to increase the generated output voltage.

Your answer is incorrect.

The correct answer is:

c)   connected in star to allow earthing of the star point;

Question **28**

Not answered

Marked out of 1.00

Cylindrical rotors are used in 50 Hz alternators with:-

    a.   b)   few poles driven at high speed;

    b.   c)   many poles driven at low speed;

    c.   a)   many poles driven at high speed;

    d.   few poles driven at low speed

Your answer is incorrect.

The correct answer is:

c)   many poles driven at low speed;

Question **29**

Not answered

Marked out of 1.00

The efficiency of an alternator is the ratio of:-

○ a.   a)   kVA output to kVA input;

○ b.
          b)   kW output to kW input;

○ c.   d)   kW output to kVA input;

○ d.   c)   kVA output to kW input;

Your answer is incorrect.

The correct answer is:

b)   kW output to kW input;

Question **30**

Not answered

Marked out of 1.00

The terminal potential difference of a three phase 50 hertz alternator is adjusted to the required value by means of:-

○ a.

d)   adjusting the number of poles.

○ b.   b)   changing the speed

○ c.   a)   altering the field excitation

○ d.   c)   using a tapped winding;

Your answer is incorrect.

The correct answer is:
a)   altering the field excitation

Question **31**

Not answered

Marked out of 1.00

Modern large alternators use hydrogen cooling. This is done to:-

- a.   prevent the windings from oxidising;

- b.   reduce the rotational losses in the machine;

> f)   reduce the rotational losses in the machine;

- c.   reduce air pollution caused by arcing.

> ;
> h)   reduce air pollution caused by arcing.

- d.   reduce the load on the alternator bearings

Your answer is incorrect.

The correct answer is:
prevent the windings from oxidising;

Question **32**

Not answered

Marked out of 1.00

Alternators are connected in parallel to:-

- a.   c)   allow two alternators to be driven by one prime mover;
- b.   b)   increase the output current supplied to the load;
- c.   a)   increase the output voltage supplied to the load;
- d.   d)   because two small alternators are more efficient than one large one.

Your answer is incorrect.

The correct answer is:
b)   increase the output current supplied to the load;

Question **33**

Not answered

Marked out of 1.00

As the power factor of a constant current load with a lagging power factor is improved towards unity power factor the t.p.d. of the alternator will:-

○ a. d)   depend on load frequency.

○ b. b)   decrease;

○ c. c)   remain unchanged;

○ d. a)   increase;

Your answer is incorrect.

The correct answer is:

b)   decrease;

Question **34**

Not answered

Marked out of 1.00

Alternators are rated in terms of:-

○ a. b)   current and voltage;

○ b. a)   speed and voltage

○ c.   ;

         c)   voltage and kVA;

○ d. d)   voltage and kW.

Your answer is incorrect.

The correct answer is:

;

c)   voltage and kVA;

Question **35**

Not answered

Marked out of 1.00

1.   An alternator with a full load t.p.d. of 415 volts has the terminal voltage increase to 499 volts on no load. Determine the percentage voltage regulation for the alternator.

○ a.   15

○ b.   20.24

○ c.   30

○ d.   10

Your answer is incorrect.

The correct answer is:
20.24

Question **36**

Not answered

Marked out of 1.00

---

1.   The terminal voltage of a 70MVA, three phase, 50 hertz, star connected alternator is 11.7kV. If the armature winding has a breadth factor (k) of 0.956 and the armature winding has 16 turns per phase determine:-

a)   the maximum flux per pole; (

b)   the full load current rating of the alternator.

- a.   (1.98Wb) (3 454A.)
- b.   (1.98Wb) (6 454A.)

Your answer is incorrect.

The correct answer is:
(1.98Wb) (3 454A.)

Question **37**

Not answered

Marked out of 1.00

The 70MVA alternator i has an efficiency of 92 percent when operating at full load and 0.8 power factor. Determine the power output of the prime mover at this load.

- a.   50 MW
- b.   60.87MW
- c.   70 MW

Your answer is incorrect.

The correct answer is:
 60.87MW

Question **38**

Not answered

Marked out of 1.00

"Normal excitation" of a synchronous motor at full load:-

- a.   b)   gives minimum power factor and maximum current;
- b.   c)   gives minimum power factor and minimum current;
- c.   d)   gives unity power factor and minimum current.
- d.   a)   is the rated field current on the nameplate;

Your answer is incorrect.

The correct answer is:
a)   is the rated field current on the nameplate;

Question **39**

Not answered

Marked out of 1.00

Synchronous motors develop a torque by:-

○ a.   c)   attraction between stator and rotor fields;

○ b.

  (d) Rotor field hunting stator field

  d)   stator field hunting the rotor field.

○ c.   a)   electromagnetic induction between stator and rotor;

○ d.   b)   mutual induction between stator and rotor;

Your answer is incorrect.

The correct answer is:

(d) Rotor field hunting stator field

d)   stator field hunting the rotor field.

Question **40**

Not answered

Marked out of 1.00

An "under excited" synchronous motor would operate with:-

○ a.   a)   a leading power factor at more than synchronous speed;

○ b.   c)   a lagging power factor at synchronous speed;

○ c.   b)   a leading power factor at synchronous speed;

○ d.   d)   a lagging power factor at less than synchronous speed.

Your answer is incorrect.

The correct answer is:

d)   a lagging power factor at less than synchronous speed.

Question **41**

Not answered

Marked out of 1.00

Synchronous motors are:-

○ a.   a)   all self starting and produce high starting torque;

○ b.   c)   started as a d.c. motor by connecting d.c. to the stator;

○ c.   b)   started as induction motors or with a pony motor;

○ d.   d)   started as a slip ring motor by connecting a.c. to the rotor.

Your answer is incorrect.

The correct answer is:

b)   started as induction motors or with a pony motor;

Question **42**

Not answered

Marked out of 1.00

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1.   A three phase four pole 415 volt synchronous motor takes a current of 75 amperes at full load with normal excitation while driving a 50kW load. Determine:-

a)   the input power to the motor;

b)   the efficiency of the motor under these conditions;

c)   the speed of the motor

d)   the torque delivered to the load at normal excitation;

e)   the current taken if excitation is reduced until power factor is 0.8 lagging.

○ a.   (60.1kW)(90%) ; (1 500r.p.m.) (258.3Nm) (93.75A)

○ b.   (58.91kW)(80%) ; (1 500r.p.m.) (318.3Nm) (100A)

○ c.   (53.91kW)(92.75%) ; (1 500r.p.m.) (318.3Nm) (93.75A)

Your answer is incorrect.

The correct answer is:
(53.91kW)(92.75%) ; (1 500r.p.m.) (318.3Nm) (93.75A)

◄ Week 9 Quiz

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