Started on	Tuesday, 25 October 2022, 6:01 PM
State	Finished
Completed on	Tuesday, 25 October 2022, 7:29 PM
Time taken	1 hour 28 mins
Grade	**77.50** out of 100.00

Question 1

Correct

Mark 7.50 out of 7.50

A 20-turn square coil of side 300 mm is mounted on a cylinder 300 mm in diameter. The cylinder rotates at 1500 r/min and cuts a uniform magnetic field of 0.8 T at the two poles. The pole subtends an angle of 90° at the centre of the cylinder.

What is the speed of a conductor in the field, in m/s? [1 decimal places]

Answer: 23.6

✔

The correct answer is: 23.6

Question 2

Incorrect

Mark 0.00 out of 7.50

What is area of each pole normal to the flux, in cm^2? [A whole number, i.e., 0 decimal places]

Answer: 900

✖

The correct answer is: 636

Question 3

Incorrect

Mark 0.00 out of 7.50

What is the value of the flux per pole, in mWb? [A whole number, i.e., 0 decimal places]

Answer: 36

✖

The correct answer is: 51

Question 4

Correct

Mark 5.00 out of 5.00

What is the maximum value of the voltage induced in a conductor, in V? [1 decimal place]

Answer: 5.7

✔

The correct answer is: 5.7

Question 5

Incorrect

Mark 0.00 out of 7.50

What is the maximum value of the voltage induced in the coil, in V? [A whole number, i.e., 0 decimal places]

Answer: 114

✖

The correct answer is: 226

Question 6

Correct

Mark 5.00 out of 5.00

What is the frequency of the induced voltage of the conductor, in Hz? [1 decimal place]

Answer: 25 ✔

The correct answer is: 25

Question 7

Correct

Mark 5.00 out of 5.00

What is the frequency of the induced voltage of the coil, in Hz? [1 decimal place]

Answer: 25 ✔

The correct answer is: 25

Question 8

Correct

Mark 3.00 out of 3.00

What can happen to the speed of a rotating machine if you double ***the number of pole pairs*** ?

Select one:

- A. It remains the same.
- B. It halves. ✔
- C. It doubles.
- D. It quadruples.
- E. I do not know.

The correct answer is:
It halves.

Question 9

Correct

Mark 3.00 out of 3.00

What can happen to the speed of a rotating machine if you double ***the number of poles*** ?

Select one:

- A. It remains the same.
- B. It halves. ✔
- C. It doubles.
- D. It quadruples.
- E. I do not know.

The correct answer is:
It halves.

Question 10

Correct

Mark 3.00 out of 3.00

What can happen to the speed of a rotating machine if you double ***the frequency of the induced voltage*** ?

Select one:

- A. It remains the same.
- B. It halves.
- C. It doubles. ✔
- D. It quadruples.
- E. I do not know.

The correct answer is:
It doubles.

Question 11

Correct

Mark 3.00 out of 3.00

What can happen to the speed of a rotating machine if you double the ***frequency of applied voltage*** ?

Select one:

- A. It remains the same.
- B. It halves.
- C. It doubles. ✔
- D. It quadruples.
- E. I do not know.

The correct answer is:
It doubles.

Question 12

Correct

Mark 3.00 out of 3.00

What can happen to the speed of a rotating machine if you double the ***number of conductors*** ?

Select one:

- A. It remains the same. ✔
- B. It halves.
- C. It doubles.
- D. It quadruples.
- E. I do not know.

The correct answer is:
It remains the same.

Question 13

Correct

Mark 10.00 out of 10.00

A 6-pole rotating machine has 124 lap coils having two turns. The flux per pole is 0.05 Wb. With the machine running at 960 rev/min, what is the average voltage, in V, accessed by brushes on a commutator device for dc output? [1 decimal place]

Answer: 595.2 ✔

The correct answer is: 595.2

Question 14

Correct

Mark 10.00 out of 10.00

What is the armature current, in A, needed in each parallel path to accommodate rotor torque of 50 Nm for dc voltage output? [1 decimal place]

Answer: 7.9 ✔

The correct answer is: 8.4

Question 15

Correct

Mark 10.00 out of 10.00

What is the conductor distribution factor if the machine is arranged for single-phase working? [2 decimal places]

Answer: 0.64 ✔

The correct answer is: 0.64

Question 16

Correct

Mark 10.00 out of 10.00

What is the rms voltage, in V, accessed by brushes on slip-rings for single phase ac output? [1 decimal place]

Answer: 420.5

The correct answer is: 420.6

◄ [2021] EXAMPLES

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