Dashboard / My courses / EEE 3352 / Lecture 5: Rotating machines / Assignment 5 (Quiz): 25 October 2022: 1800 - 1930 hrs

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

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]



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 cm²? [A whole number, i.e., 0 decimal places]



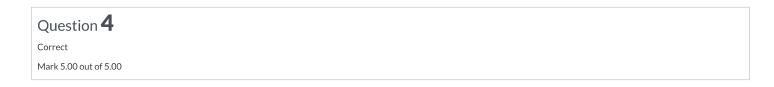
The correct answer is: 636



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



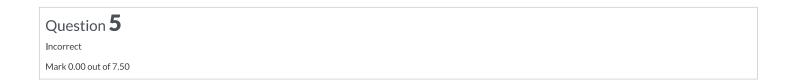
The correct answer is: 51



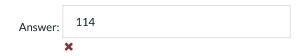
What is the maximum value of the voltage induced in a conductor, in V? [1 decimal place]



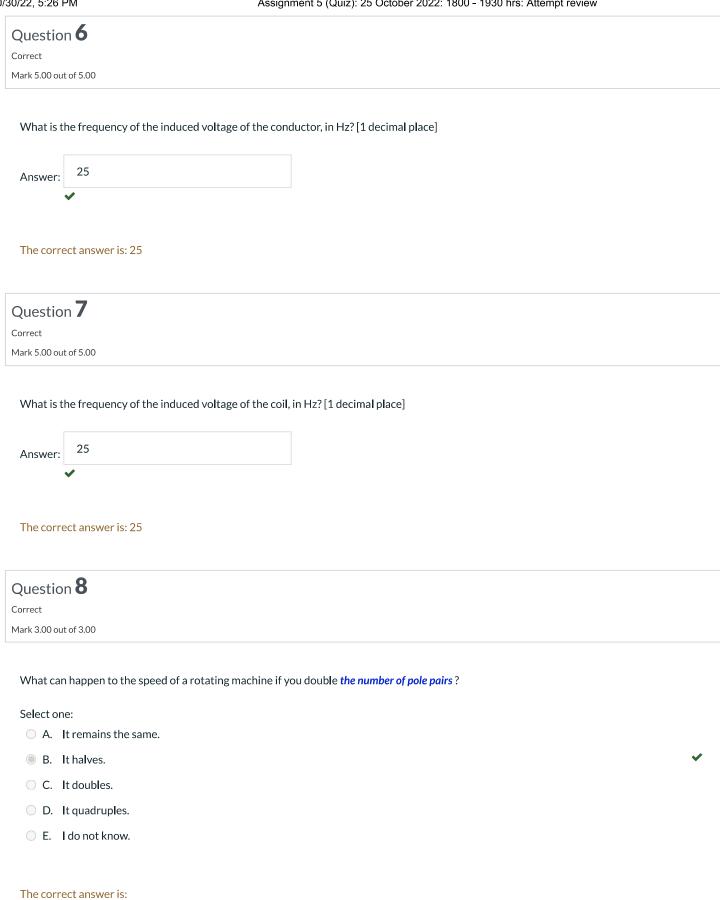
The correct answer is: 5.7



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



The correct answer is: 226



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.
O. 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 200 put 45 200
Mark 3.00 out of 3.00
What can happen to the speed of a rotating machine if you double the <i>frequency of applied voltage</i> ?
Select one:
○ A. It remains the same.
O B. It halves.
○ C. It doubles.
O. 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 <i>number of conductors</i> ?
Select one:
○ A. It remains the same.
○ B. It halves.
○ C. It doubles.
O. 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]



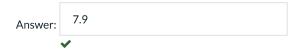
The correct answer is: 595.2

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]



The correct answer is: 8.4

Question **15**

Correct

Mark 10.00 out of 10.00

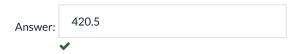
What is the conductor distribution factor if the machine is arranged for single-phase working? [2 decimal places]



The correct answer is: 0.64



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



The correct answer is: 420.6

◄ [2021] EXAMPLES

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