Dashboard / My courses / EEE 3352 / Lecture 6: DC machines / Assignment 6 (Quiz): 26 October 2022: 1100 - 1300 hrs

Started on Wednesday, 26 October 2022, 11:50 AM

State Finished

Completed on Wednesday, 26 October 2022, 12:40 PM

Time taken 50 mins 21 secs

Grade 90.0 out of 100.0

Question **1**

Correct

Mark 5.0 out of 5.0

A separately-excited dc generator supplies 40 A to a resistance load at 220 V when running at 1500 rpm. The armature resistance is 0.05 Ω and field current will remain unchanged. What is the value of the load resistance, in Ω ? [1 decimal place]



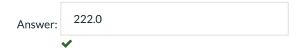
The correct answer is: 5.5

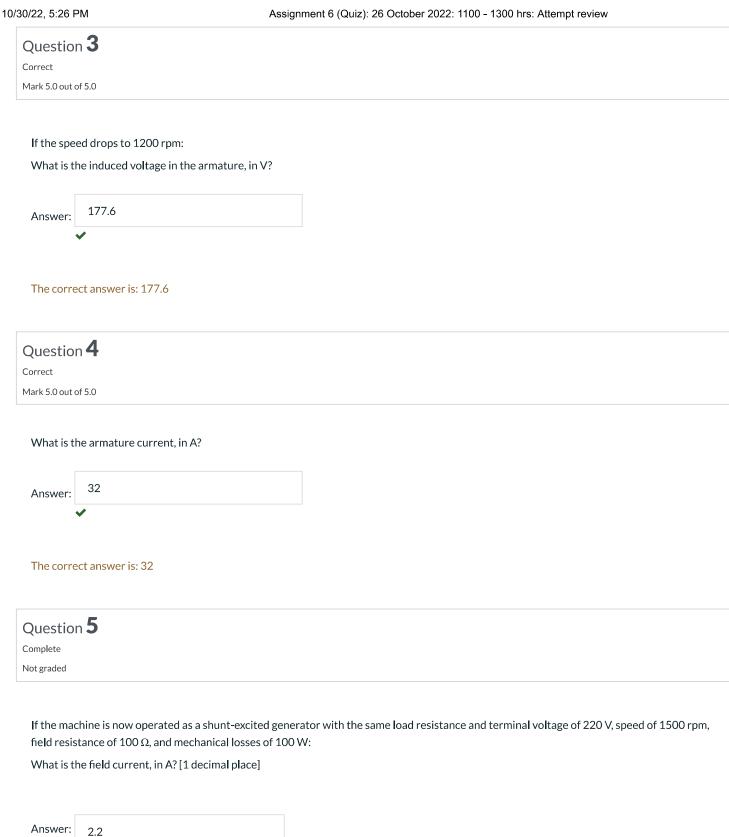
Question 2

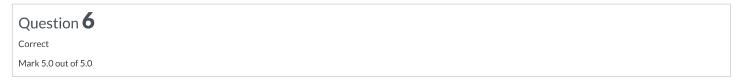
Correct

Mark 5.0 out of 5.0

What is the induced emf in the armature at this condition, in V? [1 decimal place]



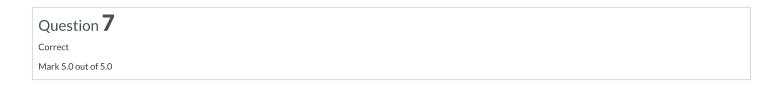




What is the armature current, in A? [1 decimal place]



The correct answer is: 42.2



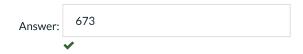
What is the induced voltage in the armature, in V? [1 decimal place]

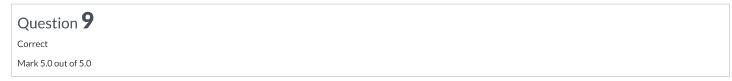


The correct answer is: 222.1



What is the total power loss in the machine, in W? [whole number, i.e., 0 decimal places]





What is the efficiency of the generator, in %? [1 decimal place]

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Answer: 92.9
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The correct answer is: 92.9

Question 10 Correct Mark 5.0 out of 5.0

A 300-V dc shunt motor runs at 1200 rpm at no-load while taking 5 A. The armature and shunt field resistances are $0.2\,\Omega$ and $300\,\Omega$, respectively. Assuming the flux is constant and the motor draws 50 A from the supply when loaded:

What is the field current, in A? [1 decimal place]



The correct answer is: 1

Question **11**Correct

Mark 5.0 out of 5.0

What is the armature current at no-load, in A? [1 decimal place]



Question **12**

Correct

Mark 5.0 out of 5.0

What is the armature current when loaded, in A? [1 decimal place]



The correct answer is: 49

Question **13**

Correct

Mark 5.0 out of 5.0

What is the induced voltage in the armature at no-load, in V? [1 decimal place]



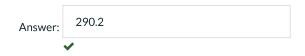
The correct answer is: 299.2

Question **14**

Correct

Mark 5.0 out of 5.0

What is the induced voltage in the armature when loaded, in V? [1 decimal place]



The correct answer is: 290.2

Question **15**

Correct

Mark 5.0 out of 5.0

What is the speed of the motor when loaded, in rpm? [whole number, i.e., 0 decimal places]



The correct answer is: 1164

Question **16**

Correct

Mark 5.0 out of 5.0

The motor is now run as a dc series motor with a field resistance $0.4\,\Omega$, and it draws a current of 40 A at 800 rpm:

What is the induced voltage in the armature at this condition, in V ?



The correct answer is: 276

Question 17

Correct

Mark 5.0 out of 5.0

If the load for the dc series motor is reduced to a new situation so that the motor takes 30 A:

What is the induced voltage in the armature at this new condition? [1 decimal place]





Incorrect

Mark 0.0 out of 5.0

What is the new operating speed, in rpm? [1 decimal place]



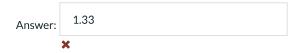
The correct answer is: 1090

Question **19**

Incorrect

Mark 0.0 out of 5.0

What is the ratio of the new load torque to the previous load torque? [2 decimal places]



The correct answer is: 0.56

Question 20

Correct

Mark 5.0 out of 5.0

What is the percentage change in the electromagnetic torque from the previous load condition to the new load condition, %? [whole number, i.e., 0 decimal places]



The correct answer is: 44

■ EXAMPLES

Jump to...

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