QUIZ – ANSWER KEY

QUIZ NO: 151

TOPIC: ELECTRICAL ENGINEERING

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1. Ward Leonard method is _____ ?

   [A] Armature control method

   [B] Field control method

   [C] Combination of armature control method and field control method

   [D] Totally different from armature and field control method

   Answer: C
   Explanation: Ward Leonard method is the combination of armature control method and field control method, which can also be called as voltage control method. This is the most efficient method of speed control over wide range.

2. Which of the following component is not used in Ward Leonard method?

   [A] AC motor

   [B] DC generator

   [C] DC motor

   [D] AC generator

   Answer: D

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Explanation:

Whole unit of Ward Leonard speed control unit consists of various units like DC generator, DC motor, AC motor, exciter circuit and various pots which are used for carrying out smooth operation.

3. In Ward Leonard speed control method for lowering the speed of the motor ____ ?

[A] Reduce armature voltage

[B] Increase armature voltage

[C] Increase field current

[D] Decrease field current

Answer: A
Explanation: In Ward Leonard speed control method, speed can be reduced under base value by reducing armature voltage. By increasing field current speed can be reduced but this is not employed in Ward Leonard method.

4. Reducing the armature voltage will give us _____ ?

[A] Variable torque speed control

[B] Constant torque speed control

[C] Variable and constant both can be achieved

[D] Cannot comment on torque

Answer: B

Explanation: As seen from speed torque characteristics, reducing armature voltage will reduce the speed of the motor below base value but torque will remain same. Thus, reducing armature voltage will give constant torque speed control.

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5. In Ward Leonard speed control method for increasing the speed of the motor _____?

[A] Reduce armature voltage

[B] Increase armature voltage

[C] Increase field current

[D] Decrease field current

Answer: D

Explanation: In Ward Leonard speed control method, speed can be increased above base value by weakening of the field, which can be done by lowering field current value. By increasing armature voltage speed can be increased but this is not employed in Ward Leonard method.

6. Reducing the field current will give us _____ ?

[A] Constant torque and variable power speed control

[B] Constant torque speed control

[C] Variable power speed control

[D] Constant power speed control

Answer: B

Explanation: As seen from speed torque characteristics, reducing field current will increase the speed of the motor above base value but power will remain same. Thus, reducing armature voltage will give constant power speed control, with variable torque.

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7. Speed-power characteristic for Ward Leonard speed control method _____?

[A] Will start from origin

[B] Will start from some positive value on power axis

[C] Will start from some positive value on speed axis

[D] Depends on other parameters

Answer: A

Explanation: Speed power characteristic of DC motor is plotted when, Ward Leonard speed control method is employed. For speed equal to zero, which is less than base speed, we get constant torque but variable power operation. Thus, power will start increasing from origin.

8. Efficiency of Ward Leonard method is _____?

[A] Higher than rheostatic control method but lower than shunted field control method

[B] Lower than rheostatic control method

[C] Higher than rheostatic control method and shunted field control method

[D] Depends on load

Answer: C

Explanation:

Unlike all other methods, external resistance is not added in the circuit of control system. Thus, efficiency of Ward Leonard control method is always highest at various different speeds.

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9. Starting gear used in Ward Leonard method_____ ?

[A] Is of small size
[B] Is of large size
[C] Size depends on application
[D] Is absent

Answer: D

Explanation: No special starting gear is required in Ward Leonard method of speed control. As the induced voltage by generator is gradually raised from zero, the motor starts up smoothly. Speed reversal is smoothly carried out.

10. To get the speed of DC motor below the normal speed without wastage of electrical energy we use ___ ?

[A] Ward Leonard control
[B] Rheostatic control
[C] Any of the Ward Leonard or rheostatic method can be used
[D] Not possible

Answer: A

Explanation: Ward Leonard method of speed control is most efficient method of speed control in all aspects. We can get constant torque operation and constant power operations as well, with this method.