QUIZ – ANSWER KEY

QUIZ NO: 129

TOPIC: ELECTRICAL ENGINEERING

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1. Characteristics of separately excited DC generator are drawn by keeping __ ?

   [A] Field current and speed both constant

   [B] Field current and speed both variable

   [C] Field current constant and speed variable

   [D] Field current variable and speed constant

   Answer: B
   Explanation: The operation considered here assumes that the armature is driven at constant speed (by means of prime mover) and the field excitation (If) is adjusted to give rated voltage at no-load and is then held constant at this value throughout the operation considered.

2. What is the reason behind dropping down of E_a with load ?

   [A] Field resistance

   [B] Load resistance

   [C] Internal factors

   [D] Armature reaction

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Answer: D

Explanation: In spite of fixed excitation, E_a drops off with load owing to the demagnetizing effect of the armature reaction. As the voltage drop is caused by magnetic saturation effect, it increases with load non-linearity.

3. The variation in terminal voltage of DC shunt generator with respect to variation in separately excited DC generator is ___ ?

[A] Much rapid

[B] Much slower

[C] Remains constant

[D] Can't say

Answer: A

Explanation: The terminal voltage drops off much more rapidly with load in a shunt generator than in a separately-excited generator because of fall in field current with terminal voltage. The external characteristic is a double-valued curve with a certain IL (max).

4. Which of the following characteristic lies above of all others ?

[A] Differential compound

[B] Under compound

[C] Level compound

[D] Over compound

Answer: D

Explanation: All the graphs when drawn across voltage and load current, start from the same point but with increase in values of load current all machines show different elevation according to the values of series field resistor.

5. Why differential compound generator is not used in practice?

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[A] High cost

[B] High maintenance

[C] High drop down in voltage

[D] Difficult construction

Answer: C

Explanation: At a given value of load current, differential compound machine gives lowest voltage output. As the load current increases drop down in terminal voltage of DC differential compound generator is maximum.

6. How compounding level in a compound machine is adjusted ?

[A] By adding variable resistance in series with series field resistance

[B] By adding variable resistance in parallel with series field resistance

[C] By adding fixed resistance in parallel with series field resistance

[D] By adding fixed resistance in series with series field resistance

Answer: B

Explanation: When fixed resistance is added in parallel with series field resistance we get only one other compounding level. So, by adding variable resistance in parallel with series field we can get various other compounding levels.

7. Which of the following have different external characteristic than other?

[A] Self excited DC shunt generator

[B] Separately excited generator

[C] Compound DC generator

[D] Series DC generator

Answer: D

Explanation: Unlike Self excited DC shunt generator, separately excited generator,

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compound DC generator the voltage at zero load current for DC series motor doesn't start from some positive non-zero value, instead it starts from origin.

8. For series DC generator, internal/external characteristic start from _____?

[A] Positive non-zero voltage
[B] Zero voltage
[C] Negative non-zero voltage
[D] Can start from anywhere

Answer: B

Explanation: For all other DC generators other than series DC generators, the external and internal characteristic as well, start from non-zero positive value of voltage. While in series DC generator both internal and external characteristic start from origin.

9. For a given DC series generator with critical resistance equal to 100 Ω, armature resistance is equal to 50 Ω, and series field resistance is equal to 20 Ω, is connected across load of 50 Ω. What will be the load voltage?

[A] 20 kV
[B] 0 V
[C] 2 kV
[D] Data insufficient

Answer: B

Explanation: Here, DC series motor fails to excite as addition of armature resistance, load resistance and field resistance is greater than the critical resistance of the machine by 20 Ω. Thus, machine fails to self-excite, as a result we'll get zero terminal voltage.

10. External characteristic differ from internal characteristic in DC series motor by __ ?

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[A] I_a *(R_a + R_{SE})

[B] I_a *R_a

[C] I_a *R_{SE}

[D] If *R_{SE}

Answer: A

Explanation: In series DC generator series resistor R_{SE} is added with armature circuit, thus total drop in terminal voltage from generated armature voltage is equal to I_a *(R_a + R_{SE}). While drawing internal characteristics presence of armature resistance and series resistance is not taken into account.