

## D.C Machines (Short questions)

(1) What is the utility of plotting the magnetisation curve?

A - The mag. curve gives an idea about the field current required to obtain a given emf at a known speed. This means that a desired v-lue of emf can be obtained by adjusting the field rheostat.

(2) If the generator speed is changed to 120% of its rated speed, what will be the effect on its magnetisation curve.

A - From the eqn  $E = \Phi ZNP/60A$ , we know that if  $\Phi$  is constant  $E \propto N$ . Therefore emf induced,  $E$  would be in the proportion of the speed  $N$ .

(3) Name of various parts of a d.c Machine

A - Armature, main field poles, interpoles, yoke, brushes, commutator, bearings are the major parts.

(4) How the various laminations of the armature of a d.c M/c are insulated from each other?

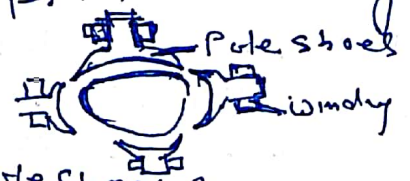
A - The laminations are insulated from each other by a thin layer of varnish.

(5) Name the common types of armature winding in D.C M/c

A - The commonly used armature windings in armature of d.c M/c are simple lap and wave winding.

(6) What are the purpose of pole shoes in d.c M/c

A - Firstly they provide the support to the field coils. Secondly their shape helps in ~~making~~ making the magnetic field radiate.



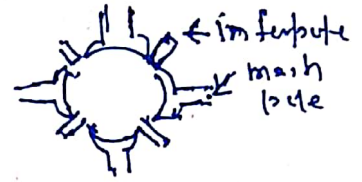
(7) Do the iron losses occur in the pole shoes?

A - Yes, the iron losses occur in pole shoes of a d.c M/c. This is because the flux in the air gap is of alternating nature. However, the magnitude of iron losses occurring in the shoes is quite small and negligible as compared to occurring in the armature core.

## D.C. M/C Shunt &ustrans

Q Why interpoles are used in d.c. machines?

A - These are two advantages - First their use improves commutation under loaded conditions. Second these ensure sparkless operation of the brushes at the commutator. These are provided in between the main poles in the M/C



Q. What is commutator?

A. In case of d.c. generator commutator rectifies the a.c. alternating emf induced in the armature coils. In case of d.c. motor, the commutator inverts the applied d.c. voltage to alternating voltage for feeding the same to the armature coil.

(10) Name the material of brushes of a d.c. m/c

A - It is carbon or graphite. These materials are soft, self-lubricating and highly conductive.

(11) When does the magnetisation curve approach saturation?

A - When field current has comparatively higher values, the magnetisation curve becomes flat i.e., horizontal, this situation is known as saturation. This means a significant increase in field current causes a little or no increase in the emf generated.

(12) A d.c. shunt generator builds up 230 V when run in clockwise direction? What could be the voltage build up if the direction of rotation of the prime mover is reversed?

A - There wouldn't be any voltage build up. ~~for~~ to obtain the voltage the direction of rotation of prime mover, or the connection of the field terminals should be reversed.