1. A bank of condenser across the load of the factory is used for

(1) improving the power factor (2) reducing the power factor

(3) reducing the fluctuations (4) quick starting of the motors

Ans (1)

2. The unit of electrical energy is

(1) watt (2) ampere hour (3) kW.hr (4) volt-ampere

Ans (3)

3. one volt is equal to

(1) one joule (2) one coulomb per joule

(3) one Joule/coulomb (4) work done in shifting one coulomb

Ans (3)

One volt is defined as the electric potential between two points of a conducting wire when an electric current of one ampere dissipates one watt of power between those points.Equivalently, it is the potential difference between two points that will impart one joule of energy per coulomb of charge that passes through it.

4. The voltage supplied by one cell of a dry cell or modified Lecklange cell is approximately

(1) 1.5 V (2) 1.11 V **(3) 1.6 V** (4) 2.1 V

Ans (1)

5. The voltage supplied by one cell of a led acid battery is approximately

(1) 0.5 V (2) 1.11 V (3) 1.6 V **(4) 2.1 V**

Ans (4)

6. The voltage supplied by one cell of a Nickel-Cadmiun battery is approximately

(1) 0.5 V **(2) 1.11 V** (3) 1.6 V (4) 2.1 V

Ans (2)

7. The capacitance between two plate capacitors increases with

(1) Larger plate area and shorter GAP/distance between plates

(2) Shorter plate area and shorter distance between them

(3) Shorter plate area and higher applied voltage

(4) Larger plate area , longer distance between plates and higher applied voltage

Ans (1)

8. In a capacitor, the electric charge is stored in

(1) dielectric medium

(2) metal plates

(3) dielectric as well as metal plates

(4) neither dielectric nor metal plates

Ans (1)

9. Paper condenser/capacitor is

(1) **usually of fixed value**

(2) a variable condenser

(3) 1000 watt-seconds

(4) none of these

Ans (1)

10. An electromagnet can be made by

(1) single touch method

(2) double touch method

(3) divided touch method

(4) passing current through solenoid

Ans (4)

How to make an electromagnet?

When the electric current moves through a wire, it makes a magnetic field. If coil the wire around and around, it will make the magnetic force stronger, but it will still be pretty weak. Putting a piece of iron or steel inside the coil makes the magnet strong enough to attract objects. The strength of an electromagnet can be increased by increasing the number of loops of wire around the iron core and by increasing the current or voltage.

11. One commercial unit of electrical energy equals

(1) one watt-hour

(2) **one kilo watt-hour**

(3) 1000 watt-seconds

(4) none of these

Ans (2)

12. Poles of magnet

(1) can be separated **(2) cannot be separated**

(3) can be used separately (4) can be separated by breaking it into pieces

Ans (2)

13. A magnet does not attract

(1) nickel (2) iron **(3) copper** (4) ferritic stainless steel

Ans (3) (Magnet will not attract austenitic stainless steel)

14. A magnet does not attract

(1) nickel (2) iron

(3) ferritic stainless steel **(4) austenitic stainless steel**

Ans (4)

15. Fleming's left hand rule is used to find

(1) **direction of force on a current carrying conductor in a magnetic field**

(2) direction of flux in a solenoid

(3) direction of magnetic field due to a current carrying conductor

(4) none of these

Ans (1)

16. Fleming's right hand rule is used to find

(1) **direction of force on a current carrying conductor in a magnetic field**

(2) direction of flux in a solenoid

(3) direction of magnetic field due to a current carrying conductor

(4) none of these

Ans (1)

17. Active elements of alkaline battery are

(1) lead peroxide and sponge lead (2) nickel-hydrate and iron-oxide

(3) manganese di-oxide and carbon (4) none of these

Ans (4)

Note:

These batteries are introduced to overcome the weight and mechanical weakness of the lead plates. The main working **principle of the alkaline battery** is based on the reaction between zinc (Zn) and manganese dioxide (MnO_2). An alkaline battery is so named because the electrolyte used in it is potassium hydroxide, a purely alkaline substance.

Alkaline batteries are disposable batteries with zinc and manganese dioxide as electrodes. The alkaline electrolyte used is either potassium or sodium hydroxide.These batteries have a steady voltage offering better energy density and leakage resistance than carbon zinc batteries.

Compared with zinc-carbon batteries of the Leclanché cell or zinc chloride types, alkaline batteries have a higher energy density and longer shelf life, yet provide the same voltage.

The main working **principle of the alkaline battery** is based on the reaction between zinc (Zn) and manganese dioxide (MnO_2). An alkaline battery is so named because the electrolyte used in it is potassium hydroxide, a purely alkaline substance.

There are various **types of alkaline battery** depending on various parameters. Depending on the composition of the active materials of the plates, there are four types of battery. They are as follows,

Nickel iron (or Edison).
Nickel- cadmium (or Nife).
Silver zinc.
Alkum battery.

Depending on the method of assembling, these battery are classified as sealed and non-sealed cells or battery. Depending on the design of plates, the alkaline battery is classified as an enclosed pocket and open pocket type battery.

https://www.electrical4u.com/alkaline-batteries/

18. During discharge of a battery, the

(1) voltage of cell decreases (2) voltage of cell increases

(2) voltage does not change (4) none of these

Ans (1)

Note: Voltage changes during discharge - At the end of a charge, and before opening the charging circuit, the voltage of each cell is about 2.5 to 2.7 volts. As soon as the charging circuit is opened, the cell voltage drops rapidly to about 2.1 volts, within three or four minutes.This is due to the formation of a thin layer of lead sulphate on the surface of the negative plate and between the lead peroxide and the metal of the positive plate.

19. In a A.C. inductive circuit, capacitor is used for

(1) decreasing the power factor (2) **improving the power factor**

(3) keeping the power factor constant (4) none of these

Ans (2)

20. Electric battery is a device that

(1) generate e.m.f. by chemical reaction

(2) **converts chemical energy into electrical energy**

(3) converts chemical energy into thermal energy

(4) converts sound energy into electrical energy

Ans (2)

21. Capacity of battery is stated in terms of

(1) rate of discharge (2) voltage

(3) ampere-hour (4)Temperature

Ans (3)

22. Active elements of lead-acid battery are

(1) **lead peroxide and sponge lead** (2) nickel-hydrate and iron-oxide

(3) manganese di-oxide and carbon (4) none of these

Ans (1)

23. Which of the following is the poorest conductor of electricity?

(1) Carbon (2) Mangnanin (3) Nichrome (4) Tungsten

Ans (3)

24. The condition of the battery can be determined by

(1) voltmeter (2) high rate discharger (3) ammeter (4) ohm meter

Ans. (1 and 2)

What is the SOH?
The State of Health is a "measurement" that reflects the general condition of a battery and its ability to deliver the specified performance compared with a fresh battery. It takes into account such factors as charge acceptance, internal resistance, voltage and self-discharge.
The SOH is an indication of the point which has been reached in the life cycle of the battery and a measure of its condition relative to a fresh battery.

During the lifetime of a battery, its performance or "health" tends to deteriorate gradually due to irreversible physical and chemical changes which take place with usage and with age until eventually the battery is no longer usable or dead.

The SOH is an indication of the point which has been reached in the life cycle of the battery and a measure of its condition relative to a fresh battery.

What is the SOH used for?
Its purpose is to provide an indication of the performance which can be expected from the battery in its current condition or to provide an indication of the how much of the useful lifetime of the battery has been consumed and how much remains before it must be replaced. In critical applications such as standby and emergency power plant the SOC gives an indication of whether a battery will be able to support the load when called upon to do so.

How is the SOH determined?
Any parameter which changes significantly with age, such as cell impedance or conductance, can be used as a basis for providing an indication of the SOH of the cell.
Flooded Lead-Acid Batteries Measuring the specific gravity (SG) of the battery electrolyte can provide the best measure of the battery's state of charge (SOC). Measuring voltage is one way to estimate the state of charge of a battery; however voltage readings may vary depending upon whether the battery is being charged, discharged or is at rest (open cell). Additionally, specific gravity is good for measuring overall battery bank health.
https://www.mpoweruk.com/soh.htm

25. With respect to a lead acid battery, the number of

(1) positive plates is more than the number of negative plates

(2) both positive and negative plates is equal

(3) negative plates is one more than the number of positive plates

(4) none of these

Ans (3)

26. Which of the following insulator is most affected by heat?

(1) P.V.C. (2) Mica (3) Paper (4) Leatheroid

Ans (1)

Insulation classes for electric equipment - Classes of electrical insulation, and their maximum allowable temperatures

Class-Y insulation: Withstands a temperature of up to 90°C; typically made of cotton, silk, or paper

Class-A insulation: Withstands a temperature of up to 105°C; reinforced Class-Y materials with impregnated varnish or insulation oil Class-E insulation: Withstands a temperature of up to 120°C

Class-B insulation: Withstands a temperature of up to 130°C. This has a form that inorganic material is hardened with adhesives. This is the first insulator using this structure.

Class-F insulation: Withstands a temperature of up to 155°C; for example, made of Class-B materials that are upgraded with adhesives, silicone, and alkyd-resin varnish of higher thermal endurance

Class H insulation: Withstands a temperature of up to 180°C; for example, made of inorganic material glued with silicone resin or adhesives of equivalent performance

Class-C insulation: Withstands a temperature of up to 180°C or higher; made of 100% inorganic material. As explained above, electrical insulation is classified with its maximum allowable temperature. By adopting an insulation technique of higher thermal endurance, electric instruments can be downsized.

https://electricalbaba.com/electrical-insulation-classes/

27. Which of the following is the poorest conductor of electricity?

(1) Carbon (2) Mangnanin (3) Nichrome (4) Tungsten

Ans (3)

Zinc	5.90×10^{-8}	1.69×10^{7}	0.00370	[26]
Cobalt[i]	6.24×10^{-8}	1.60×10^{7}	0.007[30][*unreliable source?*]	
Nickel	6.99×10^{-8}	1.43×10^{7}	0.006	
Ruthenium[i]	7.10×10^{-8}	1.41×10^{7}		
Lithium	9.28×10^{-8}	1.08×10^{7}	0.006	
Iron	9.70×10^{-8}	10^{7}	0.005	[23]
Platinum	1.06×10^{-7}	9.43×10^{6}	0.00392	[23]
Tin	1.09×10^{-7}	9.17×10^{6}	0.00450	
Gallium	1.40×10^{-7}	7.10×10^{6}	0.004	
Niobium	1.40×10^{-7}	7.00×10^{6}		[31]
Carbon steel (1010)	1.43×10^{-7}	6.99×10^{6}		[32]
Lead	2.20×10^{-7}	4.55×10^{6}	0.0039	[23]
Galinstan	2.89×10^{-7}	3.46×10^{6}		[33]
Titanium	4.20×10^{-7}	2.38×10^{6}	0.0038	
Grain oriented electrical steel	4.60×10^{-7}	2.17×10^{6}		[34]
Manganin	4.82×10^{-7}	2.07×10^{6}	0.000002	[35]
Constantan	4.90×10^{-7}	2.04×10^{6}	0.000008	[36]
Stainless steel[j]	6.90×10^{-7}	1.45×10^{6}	0.00094	[37]
Mercury	9.80×10^{-7}	1.02×10^{6}	0.00090	[35]
Manganese	1.44×10^{-6}	6.94×10^{5}		
Nichrome[k]	1.10×10^{-6}	6.70×10^{5} [*citation needed*]	0.0004	[23]
Carbon (amorphous)	5×10^{-4} to 8×10^{-4}	1.25×10^{3} to 2.00×10^{3}	−0.0005	[23][38]
Carbon (graphite) parallel to basal plane[l]	2.5×10^{-6} to 5.0×10^{-6}	2×10^{5} to 3×10^{5} [*citation needed*]		[4]
Carbon (graphite)				

https://en.wikipedia.org/wiki/Electrical_resistivity_and_conductivity

Nickel	6.99×10^{-8}	1.43×10^{7}	0.006	
Ruthenium[i]	7.10×10^{-8}	1.41×10^{7}		
Lithium	9.28×10^{-8}	1.08×10^{7}	0.006	
Iron	9.70×10^{-8}	10^{7}	0.005	[23]
Platinum	1.06×10^{-7}	9.43×10^{6}	0.00392	[23]
Tin	1.09×10^{-7}	9.17×10^{6}	0.00450	
Gallium	1.40×10^{-7}	7.10×10^{6}	0.004	
Niobium	1.40×10^{-7}	7.00×10^{6}		[31]
Carbon steel (1010)	1.43×10^{-7}	6.99×10^{6}		[32]
Lead	2.20×10^{-7}	4.55×10^{6}	0.0039	[23]
Galinstan	2.89×10^{-7}	3.46×10^{6}		[33]
Titanium	4.20×10^{-7}	2.38×10^{6}	0.0038	
Grain oriented electrical steel	4.60×10^{-7}	2.17×10^{6}		[34]
Manganin	4.82×10^{-7}	2.07×10^{6}	0.000002	[35]
Constantan	4.90×10^{-7}	2.04×10^{6}	0.000008	[36]
Stainless steel[j]	6.90×10^{-7}	1.45×10^{6}	0.00094	[37]
Mercury	9.80×10^{-7}	1.02×10^{6}	0.00090	[35]
Manganese	1.44×10^{-6}	6.94×10^{5}		
Nichrome[k]	1.10×10^{-6}	6.70×10^{5} [citation needed]	0.0004	[23]
Carbon (amorphous)	5×10^{-4} to 8×10^{-4}	1.25×10^{3} to 2.00×10^{3}	−0.0005	[23][38]
Carbon (graphite) parallel to basal plane[l]	2.5×10^{-6} to 5.0×10^{-6}	2×10^{5} to 3×10^{5} [citation needed]		[4]
Carbon (graphite) perpendicular to basal plane	3×10^{-3}	3.3×10^{2}		[4]

https://en.wikipedia.org/wiki/Electrical_resistivity_and_conductivity

Resistivity	
Common symbols	ρ
SI unit	ohm metre (Ω·m)
In SI base units	$kg \cdot m^3 \cdot s^{-3} \cdot A^{-2}$
Derivations from other quantities	$\rho = R\frac{A}{\ell}$
Dimension	$ML^3T^{-3}I^{-2}$

Conductivity	
Common symbols	σ, κ, γ
SI unit	siemens per metre (S/m)
In SI base units	$kg^{-1} \cdot m^{-3} \cdot s^3 \cdot A^2$
Derivations from other quantities	$\sigma = \frac{1}{\rho}$
Dimension	$M^{-1}L^{-3}T^3I^2$

https://en.wikipedia.org/wiki/Electrical_resistivity_and_conductivity

HTTPS://WWW.THOUGHTCO.COM/ELECTRICAL-CONDUCTIVITY-IN-METALS-2340117

CONDUCTIVITY, RESISTIVITY OF METALS

MATERIAL	RESISTIVITY P(Ω•M) AT 20°C	CONDUCTIVITY Σ(S/M) AT 20°C
Silver	1.59×10^{-8}	6.30×10^{7}
Copper	1.68×10^{-8}	5.98×10^{7}
Annealed Copper	1.72×10^{-8}	5.80×10^{7}
Gold	2.44×10^{-8}	4.52×10^{7}
Aluminum	2.82×10^{-8}	3.5×10^{7}
Calcium	3.36×10^{-8}	2.82×10^{7}
Beryllium	4.00×10^{-8}	2.500×10^{7}
Rhodium	4.49×10^{-8}	2.23×10^{7}

Magnesium	$4.66x10^{-8}$	$2.15x10^{7}$
Molybdenum	$5.225x10^{-8}$	$1.914x10^{7}$
Iridium	$5.289x10^{-8}$	$1.891x10^{7}$
Tungsten	$5.49x10^{-8}$	$1.82x10^{7}$
Zinc	$5.945x10^{-8}$	$1.682x10^{7}$
Cobalt	$6.25x10^{-8}$	$1.60x10^{7}$
Cadmium	$6.84x10^{-8}$	1.46^{7}
Nickel (electrolytic)	$6.84x10^{-8}$	$1.46x10^{7}$
Ruthenium	$7.595x10^{-8}$	$1.31x10^{7}$
Lithium	$8.54x10^{-8}$	$1.17x10^{7}$
Iron	$9.58x10^{-8}$	$1.04x10^{7}$
Platinum	$1.06x10^{-7}$	$9.44x10^{6}$
Palladium	$1.08x10^{-7}$	$9.28x10^{6}$
Tin	$1.15x10^{-7}$	$8.7x10^{6}$
Selenium	$1.197x10^{-7}$	$8.35x10^{6}$
Tantalum	$1.24x10^{-7}$	$8.06x10^{6}$
Niobium	$1.31x10^{-7}$	$7.66x10^{6}$
Steel (Cast)	$1.61x10^{-7}$	$6.21x10^{6}$
Chromium	$1.96x10^{-7}$	$5.10x10^{6}$
Lead	$2.05x10^{-7}$	$4.87x10^{6}$
Vanadium	$2.61x10^{-7}$	$3.83x10^{6}$
Uranium	$2.87x10^{-7}$	$3.48x10^{6}$
Antimony*	$3.92x10^{-7}$	$2.55x10^{6}$
Zirconium	$4.105x10^{-7}$	$2.44x10^{6}$
Titanium	$5.56x10^{-7}$	$1.798x10^{6}$
Mercury	$9.58x10^{-7}$	$1.044x10^{6}$
Germanium*	$4.6x10^{-1}$	2.17
Silicon*	$6.40x10^{2}$	$1.56x10^{-3}$

*Note: The resistivity of semiconductors (metalloids) is heavily dependent on the presence of impurities in the material.

https://www.thoughtco.com/electrical-conductivity-in-metals-2340117

28. A magnet is able to attract

(1) iron, aluminium and brass (2) iron, cobalt and zinc

(3) iron, copper and nickel **(4) steel, nickel and cobalt**

Ans (4)

29. What is the simple method of increasing the voltage of an available D.C. generator?

(1) by reducing the air gap flux density (2) by increasing the speed of rotation

(3) by decreasing the speed of rotation (4) by increasing the length of the armature.

Ans (2)

The voltage generated by the DC generator is givenby

$E_g = P\varphi ZN/60A$

where
P = Number of poles of the machine
ϕ =Flux per pole in Weber.
Z = Total number of armature conductors.
N = Speed of armature in revolution per minute (r.p.m).
A = Number of parallel paths in the armature winding.

30. On which factor a good smoothing factor of a coil depends ?

(1) Thermal voltage (2) property of the wire of the coil

(3) Resistance of the coil (4) inductivity of the coil

Ans (2)

31. when a circuit is switched off, sparking may occur if the circuit is highly

(1) capacitive (2) inductive (3) resistive (4) none of these

Ans (2)

32. The good conductor of heat and electricity are

(1) metals (2) ceramics (3) polymers (4) None

Ans (1)

33. The aim of shielding an electrical measuring instrument is to

(1) prevent its damage due to moisture

(2) reduce the effect of stray magnetic fields on its reading

(3) increase the range of the instruments

(4)None of these

Ans (2)

Inadequate shielding and bad grounding are often blamed when measurements are inaccurate, especially in high-impedance applications. The purpose of shielding is to reduce or eliminate noise currents from coupling into electrical measurements.

This suggests that the fundamental difference between a shield and a guard is that a shield prevents external fields from affecting measurements, while a guard adds protection from DC leakage currents by surrounding the measurement node with a voltage identical that of the measurement node, both inside and outside the instrument, eliminating leakage currents.

34. The good conductor of heat and electricity is

(1) Gold (2)Aluminium **(3)Silver** (4)Copper

Ans (3)

35. Which of the following electrical generators is used for charging batteries?

(1) compound generator **(2) shunt generator**

(3) series generator (4) Tacho generator

Ans (2)

What are electrical generators?

In electricity generation, a generator is a device that converts motive power (mechanical energy) into electrical power for use in external circuit. Sources of mechanical energy include steam turbines, gas turbines, water turbines, internal combustion engines and even hand cranks.

Electrical generators are standalone machines that provide electricity when power from the local grid is unavailable. Industrial generators are often used to supply backup power to facilities, businesses, or homes during power outages but they can also be used as a primary power source in areas where a local electrical grid is unavailable or difficult to access such as mining and farming operations or even new developments and construction.

APPLICATIONS OF SHUNT WOUND DC GENERATORS

This type of DC generators generally give constant terminal voltage for small distance operation with the help of field regulators from no load to full load.
They are used for general lighting, to charge battery because they can be made to give constant output voltage and used for giving the excitation to the alternators.

36. The function of the starter in a D.C. electrical machine is to

(1) avoid the excessive current at starting (2) control the speed

(3) avoid armature reaction (4) avoid excess heating

Ans (1)

Note: Starters are used to protect **DC** motors from damage that can be caused by very high current and torque during startup. They do this by providing external resistance to the motor, which is connected in series to the motor's armature winding and restricts the current to an acceptable level.

37. Transformer works on

(1) a.c only (2) d.c. (3) a.c. and d.c. both (4) None

Ans (1)

38. The output power of any electrical motor is taken from the

(1) armature **(2) coupling mounted on the shaft** (3) conductors (4)poles

ns (2)

39. Which of the following motors are used in rolling mills for rolling of metals?

(1) d.c. shunt motor (2) d.c. cumulative compound motor

(3) d.c. series motor (4) d.c. differential compound motor

Ans (3)

40. In regenerative braking application, when an electric train is moving in a falling gradient, the d.c. motor acts as

(1) d.c. aeries motor (2) d.c. shunt motor

(3) d.c. series generator (4) dc. Shunt generator

Ans (3)

Note: Rolling mill requires high power **motor** generally dc **motor** and slip ring induction **motor** of multi-kilowatt (above 100 H.P **motor) is** preferred

https://www.tmeic.com/products/motors-metal-rolling-mills

AC adjustable speed motor drive systems are the preferred technology for new rolling mill installations and modernization projects.

two types of AC solutions for this purpose.

1. Salient pole synchronous motors that meet the high power and torque demands of a hot strip mill, as well as roughing and finishing stands.
    - Excellent torque characteristics
    - Superior efficiency
    - Unit power factor
    - Easy to control
2. Squirrel cage rotor motor applied to medium power requirements of reels and stands.
    - Extremely robust construction
    - Excellent torque characteristics on ultra-low speed rolling applications
    - Constant power output throughout field weakening range

41. D.C. series generator is used for

(1) supplying field excitation current in DC locomotives

(2) battery charging

(3) a booster to compensate the voltage drop in the feeder

(4) None

Ans (1 and 3)

APPLICATIONS OF SERIES WOUND DC GENERATORS

These types of generators are restricted for the use of power supply because of their increasing terminal voltage characteristic with the increase in load current from no load to full load.
They are used for supplying field excitation current in DC locomotives for regenerative breaking.
This types of generators are used as boosters to compensate the voltage drop in the feeder in various types of distribution systems such as railway service.
In series arc lightening this type of generators are mainly used.

42. An electric motor converts

(1) mechanical energy into electrical energy

(2) electrical energy into mechanical energy

(3) chemical energy into electrical energy

(4) kinetic energy into mechanical energy

Ans (2)

43. For lifts, which of the following types of d.c. motor is used?

(1) compound motor (2) cumulative compound motor

(3) shunt motor (4) series motor

Ans (1)

Note: AC slip ring or DC compound motors are preferred for lifts.

APPLICATIONS OF DC MACHINES

In the present day world, electrical energy is generated in bulk in the form of an alternating current. Hence, the use of DC machines, i.e., DC generators and motors are very limited. They are mainly used in supplying excitation of small and medium-range alternators. The Industrial **Applications** of DC Machines are in Electrolytic Processes, Welding processes and Variable speed motor drives.

Direct current motors are very commonly used as variable speed drives and in applications where severe torque variations occur.

APPLICATIONS OF DC MOTORS

The main applications of the three types of direct current motors are given below.

SERIES MOTORS

The series DC motors are used where high starting torque is required and variations in speed are possible. For example – the series motors are used in the rail traction system, cranes, air compressors, etc.

SHUNT MOTORS

The shunt motors are used where constant speed is required and starting conditions are not severe. The various applications of DC shunt motor are in lathes, centrifugal pumps, fans, blowers, conveyors, lifts, weaving machine, spinning machines, etc.

COMPOUND MOTORS

The compound motors are used where higher starting torque and fairly constant speed is required. The examples of usage of compound motors are in presses, shears, conveyors, elevators, rolling mills, heavy planners, etc.

44. D.C. Shunt generator is used for

(1) General lighting load (2) battery charging (3) a booster (4) None

Ans (1 and 2)

This type of DC generators generally give constant terminal voltage for small distance operation with the help of field regulators from no load to full load.They are used for general lighting, used to charge battery because they can be made to give constant output voltage and they are used for giving the excitation to the alternators.

45. A series motor should not be started on no load because the

(1) starting current will be high

(2) speed of the motor will be very high

(3) excessive sparking will occur at commutator

(4) none of these

Ans (2)

46. Which of the following is a correct statement about a series motor?

(1) its field winding consists of thicker wire and less turns

(2) it can run without load easily (3) it has an almost constant speed

(4) it has a poor torque

Ans (1)

Note: the dc series motor is often used as a starter motor in automobiles and aircraft. This type of motor is also used as a traction motor because of its ability to produce a high torque with only a moderate increase in power at reduced speed.

47. Transformer is an electric machine which transforms the ac voltage as

(1) higher level to lower level (2) lower level to high level

(3) Step-up or step-down (4) none of these

Ans (3)

48. SI Unit of measuring inductance is

(1)Ohms (2)Coulombs (3)Mhos (4)Henry

Ans(4)

49. Copper loss in a transformer is that power loss caused by -

(1)Eddy current
(2)Magnetic field reversal
(3) resistance of conductors
(4) Counter EMF
Ans(3)

50. Tachometer is used to measure

(1)RPM (2)Volt (3)Current (4)Velocity
Ans(1)

http://www.electricalunits.com/mcq-transformer-page-1/

Note: Tachometer is a device for indicating the angular (rotary) speed of a rotating shaft. The term is usually restricted to mechanical or electrical instruments that indicate instantaneous values of speed in revolutions per minute, rather than devices that count the number of revolutions in a measured time interval and indicate only average values for the interval.

Mechanical tachometers utilize the fact that the centrifugal force on a rotating mass depends on the speed of rotation and can be used to stretch or compress a mechanical spring.
A resonance, or vibrating-reed, tachometer uses a series of consecutively tuned reeds to determine engine speed by indicating the vibration frequency of the machine.

Electrical tachometers are of several types. The eddy-current, or drag, type is widely used in automobile speedometers; a magnet rotated with the shaft being measured produces eddy currents that are proportional to angular speed. Electric-generator tachometers work by generating either an alternating or a direct current. The stroboscope, an instrument that illuminates rotating objects so that they appear to have stopped moving, can be used as a tachometer.

Britannica, The Editors of Encyclopaedia. "Tachometer". ***Encyclopedia Britannica***, 30 Sep. 2013,
https://www.britannica.com/technology/tachometer. Accessed 2 February 2021.