

HSSC JE Electrical 2018 Questions With YouTube Explanation Part One

Question-1. Long distance railways operate on

- (1) 600 V dc.
- (2) 25 kV single phase ac.
- (3) 25 kV three phase ac.
- (4) 15 kV three phase ac.

Answer-2

Explanation- Railway electrification systems using alternating current (AC) at 25 kilovolts (kV) are used worldwide, especially for high-speed rail and long distance.

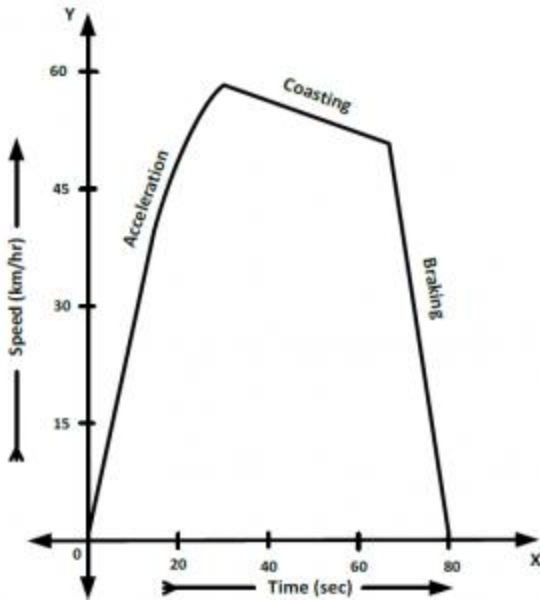
Question-2. The speed-time curve for urban service has no

- (1) coasting period
- (2) free running period
- (3) breaking period
- (4) acceleration period

Answer-2

Explanation- Urban Service or City Service

- In this service the distance between the stops is comparatively very short. (say 1 km or so)
- Time required for this run is very small.
- The acceleration as well as retardation is required to be high so that high average speed and short time run is obtained.
- Free run is not possible.
- Coasting period is also small.



Speed-Time curve for Urban Service

Question-3. The normal value of co-efficient of adhesion is

- (1) 0.25
- (2) 0.30
- (3) 0.50
- (4) 0.65

Answer-3

Explanation-

Coefficient of Adhesion in Traction (μ_a) = Maximum tractive effort that can be applied without slipping of wheels/Weight on driving excel. Normal value of co-efficient of adhesion is 0.25

Question-4. The voltage required to pass the necessary current through an electrolytic cell is of the order of

- (1) 1-2 V
- (2) 100-120 V
- (3) 10-20 V
- (4) 150-200 V

Answer-3

Explanation-The voltage required to pass the necessary current through an electrolytic cell is of the order of 10-20 V.

Question-5.What is the maximum load that is usually connected in a power sub-circuit

- (1) 1000 W
- (2) 2000 W
- (3) 3000 W
- (4) 4000 W

Answer-3

Explanation-Power sub-circuit-The load connected in a power sub-circuit normally should not exceed 3,000 watts and the number of outlasts connected on each sub circuit in no case should exceed two.

Single phase 15A sub-circuits (power sub-circuits) are used for connecting heaters, stoves, electric iron, small single phase motors etc.

Question-6.What type of starter will you recommend for a 20 kW squirrel cage induction motor

- (1) Auto-transformer starter
- (2) D-O-L starter
- (3) Star-delta starter
- (4) 3-point starter

Answer-1

Explanation-An Auto transformer Starter is suitable for a 20 kW squirrel cage induction motor.

Question-7.Compensating winding is used to

- (1) Improve commutation
- (2) Reduce armature reaction
- (3) Reduce stray losses

(4) Improve look of machine.

Answer-2

Explanation-In order to neutralize the cross magnetizing effect of armature reaction, a compensating winding is used.

Question-8. _____ is cause of failure to build up voltage.

- (1) No residual magnetism
- (2) Actual field connections
- (3) Less resistance
- (4) High field current

Answer- 1

Explanation-Cause of failure to build up voltage in generator

- 1. No residual magnetism of field
- 2. Open field connection
- 3. Field connection reversed
- 4. Field circuit resistance too high

Question-9. _____ is done to improve efficiency and reliability of dc generator.

- (1) Series operation
- (2) Parallel operation
- (3) Compound operation
- (4) Load forecasting

Answer- 1

Explanation-Parallel operation is done to improve efficiency and reliability of dc generator.

Question-10. V curve is a graph of

- (1) Armature voltage, Field current
- (2) Field voltage, Field current

(3) Armature current, Field current

(4) Field voltage, Armature current

Answer-3

Explanation-V curve is a graph of Armature current and Field current.

Question-11.Thyristor is a _____ Layer and _____ Terminal semi-conductor device.

(1) 3, 3

(2) 3, 2

(3) 2, 2

(4) 4, 3

Answer- 4

Explanation-A thyristor is a solid-state semiconductor device with four layers of alternating P- and N-type materials.It have three terminal-Anode,Cathode,Gate

Question-12.Which among the below stated Boolean expressions do not obey De-Morgan's theorem

(1) $X' + Y' = X' \cdot Y'$

(2) $X' \cdot Y' = X' + Y'$

(3) $X \cdot Y = (X + Y)'$

(4) $X' + Y = X \cdot Y$

Answer- 3

Explanation- According to De-Morgan's theorem-The complement of the product of two or more variables is equal to the sum of the complements of the variables.

Question-14. Which of the following quantities are same in all parts of parallel circuit

(1) Resistance

(2) Voltage

(3) Power

(4) Current

Answer-2

Explanation-Voltage is the same across each component of the parallel circuit.

Question-14. Power factor is the ratio of

(1) Resistance to Inductance

(2) Inductance to Capacitance

(3) Resistance to Impedance

(4) Inductance to Impedance

Answer-3

Explanation-Power Factor= $\cos(\theta)$ = Real power (P)/Apparent power (S)= $W/VA = R/Z$

Question-15.The unit of resistivity is

(1) ohm-meter

(2) mho-meter

(3) ampere-meter

(4) voltage-meter

Answer-1

Explanation-Electrical resistivity is a fundamental property of a material that quantifies how strongly it resists the flow of electric current. A low resistivity indicates a material that readily allows the flow of electric current. The SI unit of electrical resistivity is the ohm·metre ($\Omega \cdot m$)

Question-16. The Load factor

(1) is always more than 1

(2) is always less than 1

(3) 1

(4) 0

Answer- 2

Explanation-The load factor is defined as the average load divided by the peak load in a specified time period,It is always less than 1

Question-17.. Nuclear power plant is normally used for

- (1) Base load
- (2) Peak load
- (3) Average load
- (4) Any load

Answer- 1

Explanation- The base load power plants typically are nuclear plants or coal-fueled,due to low-cost fuel and steady state power they can produce.

Question-18. From below which power station has maximum efficiency

- (1) Steam Power Station
- (2) Hydro-electrical Power Station
- (3) Diesel Power Station
- (4) Nuclear Power Station

Answer- 2

Explanation-

Hydro Power station-85% efficient

Nuclear Power station-55% efficient

Diesel Power station-35% efficient

Steam Power station-25% efficient

Question-19. Which of the below metal is not used in Nuclear power plant as fuel

- (1) Uranium
- (2) Thorium
- (3) Plutonium
- (4) Magnesium

Answer- 4

Explanation- Metal is used in Nuclear power plant as fuel is enriched uranium (U-235) or reprocessed plutonium (Pu-239) and thorium.

Question-20. Which of the following power plant has practically no stand by loss

- (1) Hydro-electric power plant
- (2) Diesel power plant
- (3) Nuclear power plant
- (4) Steam power plant

Answer- 1

Explanation- Hydro Power station-85% efficient-This Plant has no stand-by losses

Question-21. What is the value of Load Factor

- (1) <1
- (2) >1
- (3) ≥ 1
- (4) <0

Answer- 1

Explanation- The load factor is defined as the average load divided by the peak load in a specified time period, It is always less than 1

Question-22. In electric welding, arc blow can be avoided by

- (1) using ac machines.
- (2) increasing arc length.
- (3) using bare electrodes.
- (4) welding away from ground connection.

Answer- 1

Explanation-Arc blow is the undesirable effect of a electric welding during arc welding. They are two kinds of arc blow-Magnetic and Thermal.In electric welding, arc blow can be avoided by using ac machines.

Question-23.Which switch use in Staircase Wiring Circuits

- (1) One way switch
- (2) Two way center off switch
- (3) Two way switch
- (4) Double pole main switch

Answer-3

Explanation-Two way switching means having two or more switches in different locations to control one lamp. It use in Staircase Wiring Circuits

Question-24.Minimum size of the aluminium conductor in domestic wiring is

- (1) 1.0 sq.mm.
- (2) 2.5 sq.mm.
- (3) 0.5 sq.mm.
- (4) 1.5 sq.mm.

Answer-3

Explanation-Minimum size of the aluminium conductor in domestic wiring is 0.5 sq.mm.

Question-25. The material most commonly used for overhead line insulators is

- (1) Rubber
- (2) Wood
- (3) Copper
- (4) Porcelain

Answer-4

Explanation- Porcelain is most commonly used material for overhead insulator.