

UTILIZATION OF ELECTRICAL ENERGY AND TRACTION (6TH SEM ELECTRICAL ENGG.)

1) For a good weld,

- a. Cross - section of the added metal should be small and oxidation should be minimum
- b. Cross - section of the added metal should be small and oxidation should be maximum
- c. Cross - section of the added metal should be large and oxidation should be minimum
- d. Cross - section of the added metal should be large and oxidation should be maximum

[Answer](#)

[Explanation](#)

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ANSWER: Cross - section of the added metal should be small and oxidation should be minimum

2) The advantage of rectifier type welding set is

- a. Reduced no - load losses
- b. Easy arc starting
- c. Less hazardous
- d. Both (a) and (b)

ANSWER: Both (a) and (b)

3) The voltage - current characteristics of the arc welding must be

- a. Exponentially rising
- b. Drooping
- c. Straight line
- d. Parabolic

ANSWER: Drooping

4) Spot welding is used to weld metal pieces whose thickness

- a. Should be greater than 12 mm
- b. Lesser than 12 mm
- c. Lies between 15 to 20 mm
- d. Greater than 20 mm

ANSWER: Lesser than 12 mm

5) The electrodes used for projection welding are

- a. Flat and smaller in diameter
- b. Flat and larger in diameter
- c. Round and smaller in diameter
- d. Round and larger in diameter

ANSWER: Flat and larger in diameter

6) In percussion welding, the heat is produced by a rapid discharge of stored electrical energy

- a. Capacitor
- b. Inductor
- c. Resistor
- d. Transformer

ANSWER: Capacitor

7) Seam welding is not used for the

- a. Welding in tanks
- b. Welding in transformers
- c. Welding in air crafts
- d. Welding alloys of copper

ANSWER: Welding alloys of copper

8) The lighting system of almost all the earlier coaches and all the newly manufactured coaches

- a. 50 V
- b. 110 V
- c. 220 V
- d. 420 V

ANSWER: 110 V

9) Pantograph collector is used in railways where the train runs at 100 to 130 kmph. Which among the following is true about pantograph collector?

- a. It is unidirectional
- b. The erection of the overhead network is complicated
- c. Its height cannot be varied
- d. None of these

ANSWER: None of these

10) A low frequency supply is given to the single phase AC system for track electrification because

- a. It improves commutation
- b. Increases efficiency
- c. Improves power factor
- d. All of these

11) The magnitude for the tractive effort which is required for the propulsion of the train depends on

- a. The adhesive weight
- b. Friction between the driving wheel and the track
- c. Both (a) and (b)
- d. Neither (a) nor (b)

ANSWER: Both (a) and (b)

12) If W is the dead weight of the train in tones and A is the acceleration of the train in kmph, the effort required for linear acceleration is given by

- a. WA newtons
- b. $177.7 WA$ newtons
- c. $277.8 WA$ newtons
- d. $388.8 WA$ newtons

ANSWER: $277.8 WA$ newtons

13) During the train movement, the tractive effort produced at the pinion by the motor is transmitted to the driving wheel

- a. Directly
- b. Through the gear wheel
- c. Through the road wheel
- d. Through the motor armature

ANSWER: Through the gear wheel

14) The area under the speed - time curve represents the

- a. Acceleration of the train
- b. Time taken by the train
- c. Distance travelled by the train
- d. Crest speed

ANSWER: Distance travelled by the train

15) In a diesel electric traction, if the current in the traction motor increases then the generator

- a. Demagnetizes and voltage decreases

- b. Magnetizes and voltage increases
- c. Magnetizes and voltage decreases
- d. Demagnetizes and voltage increases

ANSWER: Demagnetizes and voltage decreases

16) In diesel electric traction, the torque required from traction work must be

- a. Directly proportional to the speed
- b. Inversely proportional to the speed
- c. Independent of the speed
- d. Directly proportional to the square of the speed

ANSWER: Inversely proportional to the speed

17) A trolley bus runs on tyres driven by

- a. A DC compound motor
- b. A DC series motor
- c. An AC series motor
- d. An AC shunt motor

ANSWER: A DC compound motor

18) CFL means

- a. Combustible fluoride lamp
- b. Compact fluoride lamp
- c. Compact fluorescent lamp
- d. Combustible fluorescent lamp

ANSWER: Compact fluorescent lamp

19) In fluorescent lamp one capacitor is connected across the lamp circuit and another is connected across the starter. Then

- a. Both the capacitors are used for improving power factor
- b. Both the capacitors are used for reducing radio interference
- c. Former capacitor is used for improving power factor and later is used for reducing radio interference
- d. Former capacitor is used for reducing radio interference and later is used for improving power factor

ANSWER: Former capacitor is used for improving power factor and later is used for reducing radio interference

20) The main electrode of high pressure mercury vapour lamp is made up of

- a. Quartz
- b. Hard glass
- c. Tungsten
- d. Bronze

ANSWER: Tungsten

21) The practical luminous efficiency of the sodium vapour lamp is of the order of

- a. 25 to 40 lumens per watt
- b. 40 to 45 lumens per watt
- c. 45 to 50 lumens per watt
- d. 60 to 67 lumens per watt

ANSWER: 45 to 50 lumens per watt

22) Maintenance factor is the ratio of

- a. Lumens on the working plane under normal working conditions to the lumens on the working plane under ideal working conditions
- b. Lumens on the working plane under ideal working conditions to the lumens on the working plane under normal working conditions

- c. Lumens falling on the working plane to the lumens emitted by the working plane under ideal condition
- d. Lumens emitting by the working plane to the lumens falling on the working plane under ideal condition

ANSWER: Lumens on the working plane under normal working conditions to the lumens on the working plane under ideal condition

23) For avoiding hard and long shadows,

- a. Large number of small luminaries mounted at a height of less than 2.5 m can be used
- b. Large number of small luminaries mounted at a height of not less than 2.5 m can be used
- c. Small number of small luminaries mounted at a height of less than 2.5 m can be used
- d. Small number of large luminaries mounted at a height of not less than 2.5 m can be used

ANSWER: Large number of small luminaries mounted at a height of not less than 2.5 m can be used

24) For best visual performance, the range of brightness within the field of vision

- a. Should be less than 3:1
- b. Should be greater than 3:1
- c. Should be less than 1:3
- d. Should be greater than 1:3

ANSWER: Should be less than 3:1

25) The metal oxide rectifier used for electrolytic process is placed along with the transformer

- a. Inside the oil
- b. Outside the transformer but near to it
- c. Outside the transformer but far from it
- d. Half immersed in the oil

ANSWER: Inside the oil

26) The power required for electro-deposition is

- a. DC and very low voltage
- b. DC and high voltage
- c. AC and very low voltage
- d. AC and high voltage

ANSWER: DC and very low voltage

27) Electroplating is done

- a. To protect the metals against corrosion
- b. To give shiny appearance to articles
- c. To repair the worn out materials
- d. All of these

ANSWER: All of these

28) Throwing power can be improved by

- a. Increasing distance between the anode and cathode
- b. By reducing the voltage drop at the cathode
- c. By increasing current density
- d. Only (a) and (b)

ANSWER: Only (a) and (b)

29) The temperature produced in indirect arc furnace is

- a. More than in direct arc furnace
- b. Less than direct arc furnace
- c. Equal to direct arc furnace
- d. None of these

ANSWER: Less than direct arc furnace

30) The dielectric strength of air gap is

- a. 2.11kV/cm
- b. 21.1kV/m
- c. 21.1kV/cm
- d. 2.11kV/m

ANSWER: 21.1kV/cm

31) Which type of heating is used for sterilization?

- a. High frequency eddy current heating
- b. Coreless type heating
- c. Core type heating
- d. Dielectric heating

ANSWER: Dielectric heating

32) Eureka is an alloy of

- a. Nickel and chromium
- b. Nickel and copper
- c. Iron, chromium and aluminium
- d. Nickel, chromium and aluminium

ANSWER: Nickel and copper

33) A good heating element should have

- a. High resistivity and low melting point
- b. Low resistivity and high melting point
- c. High resistivity and high melting point

d. Low resistivity and low melting point

ANSWER: High resistivity and high melting point

34) In resistance furnaces, the temperature can be controlled by

a. Varying the applied voltage

b. Bucking and boosting secondary voltage

c. Changing the number of heating elements

d. All of these

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ANSWER: All of these

35) In salt bath heating, the current are allowed to flow only through the

a. Only through the salt bath

b. Only through the material being heated

c. Through both (a) and (b)

d. None of these

ANSWER: Only through the salt bath

36) An ac timer circuit is used to control the number of cycles for which the power may be supplied to the weld. In this, the time required for the voltage to fall by a given amount is

a. Directly proportional to the resistor

b. Directly proportional to the capacity of the condenser

c. Directly proportional to the inductor

d. Only (a) and (b)

ANSWER: Only (a) and (b)

37) Non - consumable electrodes are made of

- a. Carbon
- b. Graphite
- c. Either carbon or graphite
- d. Same material as the metal pieces to be welded

ANSWER: Either carbon or graphite

38) Advantage of using electron beam welding is / are

- a. Welds are clean
- b. Absence of porosity
- c. Distortion less
- d. All of these

ANSWER: All of these

39) In inert gas metal arc welding,

- a. Argon is used for welding thin materials and helium is used for welding thick materials
- b. Both argon and helium are used for welding thin materials
- c. Both argon and helium are used for welding thick materials
- d. Argon is used for welding thick materials and helium is used for welding thin materials

ANSWER: Argon is used for welding thin materials and helium is used for welding thick materials

40) Voltage required for butt welding is

- a. 2 to 8 V
- b. 8 to 15 V
- c. 15 to 22 V
- d. 22 to 30 V

ANSWER: 2 to 8 V

41) For welding aluminium alloys, the electrodes used are

- a. Hard drawn copper
- b. Cadmium copper
- c. Chromium copper
- d. Tungsten copper

ANSWER: Hard drawn copper

42) The heat required by the weld is produced due to the contact resistance between the two

- a. Directly proportional to the current
- b. Directly proportional to the square of the current
- c. Inversely proportional to the square of the current
- d. Inversely proportional to the current

ANSWER: Directly proportional to the square of the current

43) For regenerative braking, the motor which is not suitable is

- a. DC shunt motor
- b. DC compound motor
- c. DC series motor
- d. AC shunt motor

ANSWER: DC series motor

44) In case of dc series motor, the torque can be found from

- a. Only magnetization curve
- b. Only demagnetization curve
- c. Both (a) and (b)

d. None of these

ANSWER: Only magnetization curve

45) During plugging, the speed of the motor gradually decreases. If the supply to the motor is then the

- a. Motor will continue to rotate in the same direction
- b. Motor will continue to rotate in the reverse direction
- c. Motor will come to rest
- d. None of these

ANSWER: Motor will come to rest

46) Which among the following is mechanical braking?

- a. Pneumatic braking
- b. Plugging
- c. Dynamic braking
- d. Regenerative braking

ANSWER: Pneumatic braking

47) The scheduled speed of a train can be increased by

- a. Increasing the acceleration and retardation
- b. Increasing the crest speed
- c. Decreasing the duration of stop
- d. All of these

ANSWER: All of these

48) The ratio of the distance between any two stops and the sum of the time of run and the time at one station is known as

- a. Crest speed
- b. Average speed
- c. Maximum speed
- d. Scheduled speed

ANSWER: Scheduled speed

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49) In mail line train services, the

- a. Acceleration and braking periods are long
- b. Acceleration and braking periods are short
- c. Free run and coasting periods are long
- d. Both (b) and (c)

ANSWER: Both (b) and (c)

50) In tramways,

- a. Two drum controllers are employed in series
- b. Two drum controllers are employed in parallel
- c. Only one drum controller is employed
- d. Three drum controller are employed either in parallel or series

ANSWER: Two drum controllers are employed in parallel

51) For running at half of the maximum speed, the batteries of battery electric drive are connected

- a. Parallel
- b. Series
- c. Series - parallel

d. Drive cannot run at this speed

ANSWER: Series - parallel

52) In diesel electric drive,

a. A diesel engine drives an ac generator

b. Haulage capacity is less

c. Regenerative braking cannot be used

d. All of these

ANSWER: Regenerative braking cannot be used

53) In internal combustion engine drive, a gear box is

a. Required for controlling the torque

b. Required for controlling the speed

c. Required for controlling both speed and torque

d. Not required

ANSWER: Required for controlling both speed and torque

54) The inside wall of fluorescent tube is coated with

a. Sulphur powder`

b. Phosphor powder

c. Sodium

d. Krypton

ANSWER: Phosphor powder

55) Nitrogen is added with the argon in an incandescent lamp to

a. Reduce the temperature

- b. Reduce the possibility of arcing
- c. Increase the brightness
- d. Increase the efficiency

ANSWER: Reduce the possibility of arcing

56) The artificial source of light is

- a. Arc lamp
- b. Incandescent lamp
- c. Discharge lamp
- d. All of these

ANSWER: All of these

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57) The polar curves are used to find out the

- a. MHCP
- b. MSCP
- c. Both (a) and (b)
- d. None of these

ANSWER: Both (a) and (b)

58) According to the first law of illumination, the illumination of a surface due to a source of light

- a. Inversely proportional to the distance between the surface and the source of light
- b. Inversely proportional to the square of the distance between the surface and the source of light
- c. Directly proportional to the distance between the surface and the source of light
- d. Directly proportional to the square of the distance between the surface and the source of light

ANSWER: Inversely proportional to the square of the distance between the surface and the source of light

59) According to second law of illumination, the illumination at any point on an inclined surface

- a. Directly proportional to the cosine of the angle between the normal to the surface at that point
- b. Directly proportional to the sin of the angle between the normal to the surface at that point
- c. Directly proportional to the tan of the angle between the normal to the surface at that point
- d. Directly proportional to the cot of the angle between the normal to the surface at that point

ANSWER: Directly proportional to the cosine of the angle between the normal to the surface at that point

60) Reduction factor of a source of light is the ratio of its

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- a. Mean horizontal candle power to the mean spherical candle power
- b. Mean spherical candle power to the mean horizontal candle power
- c. Maximum horizontal candle power to the mean spherical candle power
- d. Mean spherical horizontal candle power to the maximum spherical candle power

ANSWER: Mean spherical candle power to the mean horizontal candle power

61) Throwing power is the ability of the electrolyte to produce

- a. Uniform deposit on an article of regular shape
- b. Uniform deposit on an article of irregular shape
- c. Non - uniform deposit on an article of regular shape
- d. Non - uniform deposit on an article of irregular shape

ANSWER: Uniform deposit on an article of irregular shape

62) The energy required for refining of gold in kWh / tone is about

- a. 100 to 150
- b. 250 to 350
- c. 300 to 350
- d. 350 to 400

ANSWER: 300 to 350

63) The metal which can be extracted from its ore by the method of electrolysis is /are

- a. Zinc
- b. Aluminium
- c. Copper
- d. All of these

ANSWER: All of these

64) The rate of heat produced by dielectric heating is increased by

- a. Increasing frequency and voltage supply
- b. Increasing frequency and decreasing voltage supply
- c. Decreasing frequency and voltage supply
- d. Decreasing frequency and increasing voltage supply

ANSWER: Increasing frequency and voltage supply

65) High frequency eddy current heating is used for

- a. Melting of non-ferrous metals
- b. High grade alloy steel production
- c. Hardening the surfaces of materials being heated
- d. Vacuum heating

ANSWER: Hardening the surfaces of materials being heated

66) For improving the power factor of coreless type induction furnace,

- a. Capacitor is used
- b. Inductor is used
- c. Resistor is used

d. Transistor is used

ANSWER: Capacitor is used

67) In indirect core type of furnace, the element is heated by induction, which transfer the heat charge by

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a. Conduction

b. Radiation

c. Convection

d. All of these

ANSWER: Radiation

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68) Direct resistance heating method is used in

a. Salt bath furnaces

b. Resistance welding

c. Electrode boiler for heating water

d. All of these

ANSWER: All of these

69) The sun's rays reach the earth without heating the atmosphere, this is due to

a. Convection

b. Radiation

c. Conduction

d. None of these

ANSWER: Radiation

70) In radiation mode of heat transfer, the heat is transferred from one body to other

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- a. From molecule to molecule due to the temperature gradient between two parts
- b. By actual movement of the heated molecules
- c. Without actually heating the medium in between
- d. All of these

ANSWER: Without actually heating the medium in between

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71) The electrodes used in carbon arc welding are made up of

- a. Carbon
- b. Graphite
- c. Either carbon or graphite
- d. Zinc

ANSWER: Either carbon or graphite

72) In metal arc welding, the filler material required is

- a. Iron
- b. Copper
- c. Aluminium
- d. No filler is required

ANSWER: No filler is required

73) Arc welding is also known as

- a. Pressure welding
- b. Plastic welding
- c. Non - pressure welding
- d. None of these

ANSWER: Non - pressure welding

74) The fusion welding is also known as

- a. Plastic welding
- b. Pressure welding
- c. Non - pressure welding
- d. None of these

ANSWER: Non - pressure welding

75) The example of plastic welding is

- a. Resistance welding
- b. Gas welding
- c. Arc welding
- d. Thermit welding without pressure

ANSWER: Resistance welding

76) After welding, the welded parts retain which properties of the metal?

- a. Melting point
- b. Density
- c. Thermal conductivity
- d. All of these

ANSWER: All of these

77) Three phase induction motor is not suitable for traction purpose because

- a. Low starting torque

- b. High starting current
- c. Constant speed operation
- d. All of these

ANSWER: All of these

78) AC series motors are most suitable for

- a. Urban services
- b. Sub-urban services
- c. Main line services
- d. All of these

ANSWER: Main line services

79) The motor which is most suitable for the traction work is / are

- a. DC series motor
- b. DC shunt motor
- c. Single phase ac series motor
- d. Three phase induction motor

ANSWER: DC series motor

80) In urban or city train service, the

- a. Acceleration period is absent
- b. Free running period is absent
- c. Coasting period is absent
- d. Braking period is absent

ANSWER: Free running period is absent

81) In speed time curve for trains, the notching period is

- a. Constant acceleration period
- b. Free running period of the train
- c. Braking period of the train
- d. Coasting period of the train

ANSWER: Constant acceleration period

82) The slope of the speed - time curve at any point gives the

- a. Acceleration of the train at that point of time
- b. Retardation of the train at that point of time
- c. Distance travelled by the train
- d. Either (a) or (b)

ANSWER: Either (a) or (b)

83) The haulage capacity is more for

- a. Steam engine system
- b. Internal combustion engine drive
- c. Battery electric drive
- d. None of these

ANSWER: Steam engine system

84) The steam engine drive and electric traction drive

- a. Both uses electricity for its operation
- b. Former do not use electricity at any stage of its operation and later uses electricity for its operation
- c. Former uses electricity for its operation and the later one do not use electricity for its operation
- d. Both do not use electricity at any stage for its operation

ANSWER: Both do not use electricity at any stage for its operation

85) The propulsion of heavy vehicle is called

- a. Illumination
- b. Electric movement
- c. Electric traction
- d. Hybrid vehicle

ANSWER: Electric traction

86) The glare can be reduced by

- a. Decreasing the height of bright light sources
- b. Using glossy surfaces for bench tops
- c. Using reflectors to the bright sources
- d. All of these

ANSWER: Using reflectors to the bright sources

87) Flood lighting is used for

- a. For enhancing the beauty of building at nights
- b. For illuminating sports stadium
- c. For illuminating show cases
- d. All of these

ANSWER: All of these

88) The suitable lamps for street lighting are

- a. Mercury vapour lamps
- b. Sodium discharge lamps
- c. Both (a) and (b)
- d. None of these

ANSWER: Both (a) and (b)

89) The illumination due to good daylight is approximately equal to

- a. 100 lux
- b. 200 lux
- c. 300 lux
- d. 400 lux

ANSWER: 200 lux

90) Lux is the unit of

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- a. Luminous flux
- b. Luminous intensity
- c. Illumination
- d. Luminance

ANSWER: Illumination

91) The range of visible radiation lies between

- a. 2000 angstrom to 2500 angstrom
- b. 4000 angstrom to 4500 angstrom

c. 5000 angstrom to 6000 angstrom

d. 4000 angstrom to 7500 angstrom

ANSWER: 4000 angstrom to 7500 angstrom

92) With increase in temperature of the body, the emission of light waves is

a. Increases

b. Decreases

c. Remains same

d. None of these

ANSWER: Increases

93) The current efficiency is defined as the ratio of

a. Actual quantity of the substance deposited to the theoretical quantity of the substance deposited

b. Actual quantity of the substance deposited to the theoretical quantity of the substance liberated

c. Theoretical quantity of the substance deposited to the actual quantity of the substance deposited

d. Theoretical quantity of the substance deposited to the actual quantity of the substance liberated

ANSWER: Actual quantity of the substance deposited to the theoretical quantity of the substance liberated

94) According to the Faraday's first laws of electrolysis, the mass of substance liberated during electrolysis is

a. Directly proportional to the current flowing through the electrolyte

b. Directly proportional to time for which current flows

c. Directly proportional to the charge

d. Only (a) and (b)

ANSWER: Only (a) and (b)

95) When sulfate molecules reacts with the water then

- a. Hydrogen is liberated
- b. Oxygen is liberated
- c. Sulphurdioxide is formed
- d. All of these

ANSWER: Oxygen is liberated

96) In direct core type induction furnaces, the leakage reactance of the magnetic circuit is

- a. High and power factor is also high
- b. Low and power factor is high
- c. High and power factor is low
- d. Low and power factor is also low

ANSWER: High and power factor is low

97) The core type induction furnace and the coreless type induction furnace are

- a. Low frequency, high frequency
- b. Low frequency, low frequency
- c. High frequency, high frequency
- d. High frequency, low frequency

ANSWER: Low frequency, high frequency

98) In induction heating, the heat produced is

- a. Directly proportional to the induced voltage and inversely proportional to the resistance
- b. Inversely proportional to the induced voltage and directly proportional to the resistance
- c. Directly proportional to the square of induced voltage and inversely proportional to the resistance
- d. Inversely proportional to the square of induced voltage and directly proportional to the resistance

ANSWER: Directly proportional to the square of induced voltage and inversely proportional to the resistance

99) Heat in water and air is transferred by

- a. Conduction
- b. Convection
- c. Radiation
- d. Either conduction or convection

ANSWER: Convection

100) The heat can be transferred from high temperature body to low temperature body by

- a. Conduction method
- b. Convection method
- c. Radiation method
- d. All of these

ANSWER: All of these

101) The efficiency of heating is more for

- a. Solid fuels
- b. Oil heating
- c. Gas heating
- d. Electric heating

ANSWER: Electric heating

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