- 1. A conduit coupling is sometimes tightened by using a strap wrench rather that by using a Stillson wrench. The strap wrench is used when it is important to avoid
  - a. crushing the conduit
  - b. stripping the pipe threads
  - c. bending the conduit
  - d. damaging the outside finish
- 2. A standard pipe thread differs from a standard screw thread in that the pipe thread
  - a. is tapered
- b b. is deeper
  - c. requires no lubrication when cutting
  - d. has the same pitch for any diameter of pipe
- Impregnated cable is most commonly used in
   a. in heater cords
   b. in high tension power cable
   d. lamp chord
- Slate is a type of insulation that is being applied most commonly in
   a. between commutator bars
   b. storage battery plate separators
   c. for large switchboard panels
   d. heater coils
- 5. Asbestos is a type of insulator used ina. heater coilsb. electric weldingc. lamp chordd. cartridge fuse
- 6. When a large generator is being operated there is an excessive humming that will lead to vibration, in order to minimize these irregularities \_\_\_\_\_\_ is applied under generator bearing pedestal.
  a. fiber b. filler c. files d. fider
- 7. What type of insulator is used between the primary and secondary winding of a transformer. a. fish paper b. mica tube c. Enamel d. **varnish**
- 8. When skinning a small wire, the insulation should be "penciled down" rather than cut square to
  - a. prevent the braid from fraying
  - b. save time in making the splice
  - c. decrease danger of nicking the wire
  - d. allow more insulation in the splice
- 9. Asbestos is commonly used as the covering of electric wires in locations where there is likely to be high
  - a. voltage **b. temperature** c. humidity d. current
- 10. Overloading insulated wire or cable for long periods of time is considered poor practice because it usually causes
  - a. over expansion of the conductor
  - b. the conductor to melt
  - c. damage to the duct or conduit
  - d. the insulation to deteriorate
- 11. Rubber insulation on an electrical conductor would most quickly be damaged by continuous contact with
  - a. acid b. water **c. oil** d. alkali

- 12. In measuring to determine the size of a stranded insulated conductor, the proper place to use the wire gauge is on
  - a. the insulation
  - b. the outer covering
  - c. the stranded conductor
  - d. one strand of the conductor
- 13. The material which is least likely to be found in use as the outer covering of rubber insulated wires or cables is
  - a. cotton **b. varnished cambric** c. lead d. neoprene
- 14. Circulating shaft currents through the bearings of a turbo-generator will cause pitting and deterioration of the bearing surface, these circulating currents are stopped by
  - a. having an insulating pad under one generator pedestal
  - b. the insulating property of the lubricating oil
  - c. insulating the shaft from the machine frame
  - d. having an insulating section in the shaft
- 15. The life of insulation used in electrical installations is directly affected by heat. Of the following, the electrical insulation which can least withstand heat is
  - a. enamel **b. rubber** c. fiberglass d. mica
- 16. One advantage of rubber insulation is that it
  - a. does not deteriorate with age
  - b. is able to withstand high temperatures
  - c. does not absorb much moisture
  - d. is not damaged by oil
- 17. After a new series lighting circuit has been completely installed, but before any lamps are in place, a standard lamp bank is connected across the fuse clips with the fuse out, and the circuit switch is closed. Lamps are then screwed into the sockets of one series, one lamp at a time, starting at the ground end. If there is a ground on any series wire, the lamp bank will light when the
  - a. first lamp is screwed in
  - b. lamp on the low side of the ground is screwed in
  - c. lamp on the high side of the ground is screwed in
  - d. last lamp is screwed in
- 18. The grounded leg of a lighting circuit is always connected to the shells of the lighting sockets
  - to
  - a. ground the circuit
  - b. reduce the possibility of accidental shock
  - c. simplify the wiring
  - d. avoid burning out lamps
- 19. Light fixtures suspended from chains should be wired so that the
  - a. wires do not support the fixture
  - b. wires help support the fixture
  - c. chains have an insulated link
  - d. chain is not grounded to prevent short-circuits
- 20. Portable lamp cord is likely to have
  - a. steel armor b. stranded wires c. paper insulation d. number 8 wire
- 21. A test lamp using an ordinary lamp bulb is commonly used to test
  - a. for polarity of a DC power supply

- b. whether a power supply is AC or DC
- c. whether a circuit is overloadedd. for grounds on 120-volt circuits
- 22. One advantage of D.C. lighting is
  - a. the ease of locating a burnt out lamp
  - b. the possibility of using five lamp clusters where necessary
  - c. there is no necessity of providing a special lighting transformer
  - d. one side of the circuit is grounded
- 23. When testing a lighting circuit for grounds, the device which would be least useful is a. a lamp bank b. a megger c. an ammeter h voltmeter

а

- 24. One advantage of using series circuits for street lighting is
  - a. lower voltage circuit
  - b. decreased copper requirements
  - c. longer lamp life
  - d. higher lamp efficiency
- 25. Five 120 volt lamps are placed in series across a 600 volt circuit and light normally. One of the lamps is then removed and replaced with a good plug fuse. Under these conditions the total illumination supplied by the remaining 4 lamps will be
  - greater than for the lamps а.
  - b. less than for the 5 lamps
  - approximately the same as for the 5 lamps C.
  - zero because the lamps will burn out almost immediately d.
- 26. Two 120-volt lamps are connected in series across a 120-volt battery which is ungrounded. The common connection of the lamps is grounded. If the lamp which is connected directly to the negative side of the battery should have a broken filament, a ground fault on the negative side of the battery would be indicated by
  - both lamps being dark a.
  - b. the good lamp being lit at full brilliancy
  - the good lamp being short-circuited C.
  - the good lamp being lit at approximately half brilliancy d.
- 27. A bank of 5 similar 120 volt lamps in series was to be used across a 600 volt line to furnish illumination. When connected across the 600 volt source the first lamp remained dark and the other lamps lit up extra brilliant for a few moments and then went dark. The probable cause of this action was that
  - the line voltage was too low to light all lamps a.
  - socket of the first lamp had an open circuit b.
  - all lamps were defective C.
  - d. socket of the first lamp was shorted
- 28. An electrician, using a standard five-in-series lamp bank containing 130-volt, 36-watt lamps. removes the two of the 36-watt lamps and replaces them with two 30-volt, 1.6-ampere lamps. The most likely immediate result will be that the
  - two 30-volt lamps will remain dark and the three 130-volt lamps will be very bright a.
  - three 130-volt lamps will remain dark and the two 30-volt lamps will be very bright b.
  - two 30-volt lamps will burn out C.
  - three 130-volt lamps will burn out d.

- 29. Of the ten lamps in two adjacent 5-lamp series which are connected to the same circuit, four of the lamps are uniformly bright and the other six are uniformly dim. A possible cause of this condition is that
  - a. two sizes of lamp have been used
  - b. one socket in each series is partially short circuited
  - c. there is a cross between the two series
  - d. there is a ground on one of the series
- 30. In order to use fluorescent lighting in a building which has only a 110 volt DC supply, it is necessary to use
  - a. fluorescent lamps designed for DC
  - b. fluorescent fixtures with an approved DC auxiliary or inductance unit and a series resistance of the correct value
  - c. fluorescent fixtures ordinarily used on AC
  - d. fluorescent fixtures ordinarily used on AC but equipped with a rectifier
- 31. An unbalanced load of incandescent lamps is connected on a 3-wire D.C. circuit. If the neutral wire should become opened at the service
  - a. all the lamps will be extinguished
  - b. nothing will happen and the lamps will continue to burn at the same brilliancy before the neutral became opened
  - c. the lamps on the less loaded side will burn with greater brilliancy and possibly burn out
  - d. the lamps on the more loaded side will burn with greater brilliancy than originally
- 32. An electric light bulb operated at more than its rated voltage will result in a
  - a. longer life and dimmer light
  - b. longer life and brighter light
  - c. shorter life and brighter light
  - d. shorter life and dimmer light
- 33. A good electrical insulator which will resist a very high temperature is
  - a. bakelite b. enamel c. transformer oil **d. mica**
- 1. A certain lighting circuit is now wired with No. 14 AWG wire. Additional lamps to be added to the circuit will increase the current beyond the capacity of this size wire. The wire of equal length and the same material required to replace the No. 14 wire will have
  - a. greater weight and lower resistance
  - b. less weight and lower resistance
  - c. greater weight and higher resistance
  - d. less weight and higher resistance
- 2. A certain five-lamp series cluster has 36-watt lamps installed. If these lamps are replaced with five 100-watt lamps, the result will be that the
  - a. fuse for the circuit will blow
  - b. lamps will burn out very quickly
  - c. amount of light will be increased
  - d. lamps will be very dim
- 3. A group of 5 lamps is connected in series and each lamp is rated at 130 volts. For full voltage burning of the lamps, the voltage of the supply which feeds these circuits must be
  - a.
     650 volts
     b.
     260 volts
     c.
     130 volts
     d.
     26 volts

- 4. 22 lamps are all connected in a single series circuit which is fed at 600 volts. The voltage rating of each individual lamp in the series must be approximately d. 22 volts a. 600 volts b. 120 volts C. 30 volts
- The most satisfactory temporary replacement for a 40-watt, 120-volt incandescent lamp, 5. if an identical replacement is not available, is a lamp rated at
  - a. 100 watts, 240 volts b. 60 watts, 130 volts c. 40 watts. 32 volts
    - d. 15 watts. 120 volts
- If the applied voltage on an incandescent lamp is increased 10%, the lamp will 6. have a longer life a.
  - consume less power b.
  - burn more brightly C.
  - fail by insulation breakdown d.
- 7. To test whether a 110-volt lighting circuit is alive,
  - a. touch each wire in turn to around
  - b. touch the ends of the wires together
  - C. use a voltmeter across the line
  - d. use an ammeter across the line
- If two identical lamps normally connected in parallel to a 110 volt line are reconnected to 8. be in series across the same line, they will
  - a. give more light **b. give less light** c. consume more power d. consume the same power
- 9. A lamp bank consists of five 100-watt bulbs connected to 600 volts. If one of these bulbs is broken and replaced with a 25-watt 120-volt bulb, the
  - 25-watt bulb will burn out a.
  - 100-watt bulbs will burn out b.
  - 100-watt bulbs will be brighter C.
  - 25-watt bulb will be very dimly lighted d.
- 10. The cold resistance of a 120 volt 100 watt Tungsten incandescent lamp is
  - greater than its hot resistance a.
  - smaller than the hot resistance b.
  - approximately 100 ohms C.
  - equal to the hot resistance d.
- If a 110-volt incandescent lamp is burned at 130 volts the result will be 11.
  - less than normal light a.
  - shorter lamp life b.
  - a blown circuit fuse C.
  - decreased lamp efficiency d.
- 12. The resistance of the tungsten filament in any incandescent lamp is
  - highest when the lamp is off a.
  - b. highest when the lamp is on
  - lowest when the lamp is on C.
  - approximately the same at all times d.
- 13. With respect to common electric light bulbs, it is correct to state that the
  - circuit voltage has no effect on the life of the bulb a.
  - filament is made of carbon b.
  - base has a left hand thread C.
  - d. lower wattage bulb has the higher resistance

- 14. When an incandescent lamp to be used for general lighting has a mogul base it is a positive indication that it is rated at over
  - a. 200 watts b. 300 watts c. 500 watts d. 750 watts
- 15. The efficiency in lumens per watt of a 10 watt fluorescent lamp
  - a. is less than of a 40 watt incandescent lamp
  - b. is the same as that of a 40 watt incandescent lamp
  - c. is the greater than that of a 40 watt incandescent lamp
  - d. may be greater or less than that of a 40 watt incandescent lamp, depending on the manufacturer
- 16. The average life of a 100 watt incandescent light bulb is approximately
  - a. 100 hrs. b. 400 hrs. c. 1000 hrs. d. 10,000 hrs.

iron

- 17.The filament of a regular incandescent electric lamp is usually made ofa.tungstenb.carbonc.nickeld.
- 18. With respect to fluorescent lamps it is correct to say that
  - a. the filaments seldom burn out
  - b. they are considerably easier to handle than incandescent lamps
  - c. their efficiency is less than the efficiency of incandescent lamps
  - d. the starters and the lamps must be replaced at the same time
- 19. A method which is sometimes used to increase the useful life of incandescent lamps is to
  - a. burn at less than rated voltage
  - b. burn at more than rated voltage
  - c. turn the lamps off when not needed
  - d. prohibit the use of shades
- 20. One disadvantage in using fluorescent instead of incandescent lighting is that, compared to incandescent lamps, fluorescent lamps
  - a. are more difficult to handle
  - b. provide less light for the same power
  - c. give more glare
  - d. have shorter lives
- 21. Fluorescent lamps compared to incandescent lamps
  - a. emit more lumens per watt
  - b. are more adversely affected by vibratory conditions
  - c. are less critical to voltage dips or variations
  - d. cannot be adapted to D.C. operation
- 22. The inert gas present in an incandescent lamp is primarily intended to
  - a. increase the luminous output
  - b. decrease the filament evaporation
  - c. activate the surface of the filament
  - d. reduce the hazards when the glass is shattered
- 23. An interior telephone system in which each party or station may call any other station but on which there may be only one conversation without interference is called
  - a. selective ringing, selective talking
  - b. selective ringing, common talking
  - c. code ringing, common talking
  - d. no name as it does not exist

- 24. The following equipment must be used on a "2-Line, Return Call" signal system
  - a. 2 bells, 2 metallic lines, 2 ordinary push buttons and 2 sets of batteries
  - b. 2 bells, 2 metallic lines, 2 return call push buttons and 2 sets of batteries
  - c. 2 bells, 2 metallic lines, 2 return call push buttons and 1 set of batteries
  - d. 2 bells, 2 metallic lines, 2 ordinary push buttons and 1 set of batteries
- 25. The function of the "Retard" or Impedance Coil in a Selective Ringing-Common Talking interior telephone system is
  - a. to prevent talking current from passing through the transmitter
  - b. to prevent the shunting of voice currents through the battery
  - c. to decrease the distance over which you may speak
  - d. to prevent the ringing current from passing through the receiver
- 26. An interior fire-alarm system best suited to the needs of such buildings as hospitals, public schools, institutions, etc., would be an
  - a. open-circuit, non-code, non-supervised system
  - b. closed-circuit, non-code, supervised system
  - c. closed-circuit, box code, supervised system
  - d. closed-circuit, box code, pre-signal, supervised system
- 27. The electric energy required to raise the temperature of the water in a pool is 1000 kwh. The heat losses are 25 percent. The total heating energy required is
  - a. 1000 kwh b. 1250 kwh c. 1333 kwh d. 1500 kwh
- 1. The ordinary direct current series motor does not operate satisfactorily with alternating current. One of the main reasons for this is
  - a. excessive heating due to eddy currents in the solid parts of the field structure
  - b. that the armature current and field current are out of phase with each other
  - c. that the field flux lags 120° in time phase with respect to the line voltage
  - d. excessive heating due to the low voltage drop in the series field
- 2. A DC elevator motor, on a gearless traction machine, has a series field for compounding during the acceleration period. This field is cut out when the motor has reached full speed, for the purpose of
  - a. preventing excessive heat
  - b. reducing the line current
  - c. providing constant speed over a wide range of load conditions
  - d. saving the cost of losses in the series field
- 3. The protective device for a motor branch circuit
  - a. should have a rating equal to or greater than the starting current of the motor
  - b. should have a rating equal to the full load current of the motor
  - c. should not be of the instantaneous type
  - d. should have a rating equal to the current capacity of the circuit conductors
- 4. When both fuses and thermal cutouts are used in a motor circuit, the
  - a. ratings of the fuses should be the same as those of the thermal cuts
  - b. fuses are used to protect against continuous, but not large overloads
  - c. thermal cutouts are used to protect against continuous overloading
  - d. thermal cutouts are used to protect against short-circuits in the motor and branch circuit
- 5. To temporarily change the direction of rotation of a single-phase, shaded-pole, induction motor you would
  - a. do nothing since it cannot be done

- b. reverse the connections to the starting winding
- c. shift the brushes to the opposite neutral
- d. reverse the line leads
- 6. For maximum safety the magnetic contactors used for reversing the direction of rotation of a motor should be
  - a. electrically interlocked
  - b. electrically and mechanically interlocked
  - c. mechanically interlocked
  - d. operated from independent sources
- 7. Silver electrical contactors are tarnished most readily by
  - a. oxygen b. hydrogen **c. nitrogen** d. sulphur
- 8. The lubricant used for sleeve bearings on motors is usually a. vaseline **b. oil** c. graphite d. grease
- 9. The correct method of measuring the power taken by an AC electric motor is to use a
  - a. wattmeter b. voltmeter and an ammeter c. power factor meter d. tachometer
- 1. A safe practical way of checking the tightness of the wire connection to the fuse clip of a live 120-volt lighting circuit is to
  - a. feel the connection with your hand to see if it is warm
  - b. try tightening with an insulated screw-driver or socket wrench
  - c. see if the circuit works
  - d. measure the resistance with an ohmmeter
- 2. If a cartridge fuse is hot to the touch when you remove it to do some maintenance on the circuit, this most probably indicated that the
  - a. voltage of the circuit is too high
  - b. fuse clips do not make good contact
  - c. equipment on the circuit starts and stops frequently
  - d. fuse is oversized for the circuit
- 3. If one end of a cartridge fuse becomes unusually warm, the first action on the part of the electrician should be to
  - a. tighten the fuse clips
  - b. replace the fuse with a larger one
  - c. transfer some load to another circuit
  - d. notify his foreman

- 1. A simple method of checking a commutator for tightness is to
  - a. feel the surface for uneven spots
  - b. check one of the V-ring bolts with a wrench
  - c. tap it lightly with a small hammer
  - d. measure the diameter at several points
- 2. If high mica develops on a commutator, it is corrected by
  - a. undercutting b. stoning c. shimming the copper d. smoothing with sandpaper
- 3. Mica is commonly used in electrical construction for
  - a. commutator bar separators
  - **b.** switchboard panels
  - **c.** strain insulators
  - **d.** heater cord insulation
- 4. To test and calibrate a polyphase watt-hour meter using a single phase AC supply, the best method is to connect the :
  - a. voltage coils in series, current coils in parallel.
  - b. current coils in parallel, voltage coils in parallel
  - c. current coils in series, voltage coils in parallel.
  - d. voltage coils in series, current coils in series.
- 5. A ground connection should be made:
  - a. before the current carrying wire is connected.
  - b. after the current carrying wire is connected.
  - c. only if power may be accidentally interrupted.
  - d. only when an extension cord is used.
- 6. A device or equipment which is suspended from overhead either by means of a flexible cord carrying the current, or otherwise.
  - a. Rosette **b. Pendant** c. Fixture d. Air terminal
- 7. Humming sound in a transformer is attributed to
   a. magnetostiction
   b. Ferroresonance
   c. Skin effect
   d. stroboscopic effect
- 8. A manufactured assembly designed to support and energize lighting fixtures that are capable of being readily repositioned is \_\_\_\_\_.

| a. ceiling grid lighting | b. electric discharge lighting |
|--------------------------|--------------------------------|
| c. lighting track        | d. open circuit lighting       |

- 9. The requirements in the standard apply to locations intended for service and repair operations in connection with self-propelled vehicles like \_\_\_\_\_, in which volatile flammable liquids or flammable gases are used for fuel or power.
   a. buses b. trucks c. tractors d. all of these
- 10. The resistance depends on four things, the length of the conductor, the diameter of the conductor, the material of the conductor and the \_\_\_\_\_.
  - a. number of turn of the conductor
  - b. temperature which the conductor operates
  - c. insulation of the conductor

d. voltage

11. A device used to connect overhead conductor to underground is. a. daghead b. connection head c. pothead d. mathead 12. Induction coils shall be prevented from inducing circulating currents in surrounding metallic equipment, supports, or structures by II. insulation of the current paths I. isolation II. shieldina a. I only b. Il only c. Ill only d. I, II or III What happens when the current in an electric circuit is reduced? 13. a. The power increases. b. The voltage increases. c. The resistance decreases. d. The heating effect decreases. What type of drill bit should be used to penetrate standard hard plate? 14. a. Boron b. Cobalt c. Carbide d. Titanium 15. Is the mechanism which is used for moving a removable circuit breaker unit to end from the connected, disconnected and test positions: a. permissive control device b. notching device c. blocking device d. position changing system 16. Is the complete electrical mechanism or servo-mechanism including the operator motor, solenoids, position switch, etc., for a tap changer, induction regulator or any piece apparatus which has no device function number: a. regulating device b. reversing device c. rotating device d. operating mechanism 17. Is used to increase or decrease in one step, the value of feild excitation on a machine: b. filed regulator a. tripping relay c. DC reclosing relay d. field changing contactor Electron normally flow: 18. a, from the grid to the plate of an electron tube b. from the positive terminal to the negative terminal inside the battery c. through a capacitor d. at the speed of light in a conductor 19. When an electric current is flowing in a conductor that is developed at a rate proportional to the square of the intensity of the current. This relation is known as: a. Coulomb's law b. Joule's law c. Faraday's law d. Ohm's law 20. An electric device designed to receive electrical power from a DC source and deliver alternating power without the aid of external source of alternating voltage. a. amplifier circuit b. oscillator circuit c. rectifier d. integrated circuit A special type of diode used to regulate DC supply: 21. b. Zener c. Diac d. shockley a. Thyristor 22. When the emfs in the two windings of the transformer are opposite in direction, the polarity is

- To determine the equivalent resistance of an inductive motor we use 23. a. no load test b. short circuit test c. **blocked rotor test** d. polarity test 24. Consisting of a single rotating machine that is mainly to convert alternating current to direct current a. motor generator set b. motor converter c. rotary converter d. polarity test 25. Intermittent operation in which the load conditions are regularly a. short time duty b. continuous duty c. periodic duty d. varying duty 26. in DC machine, this consists of coils placed at the neutral point, midway between the main pole a. compensating windings b. equalizer winding c. interpole winding d. neutralizer winding 27. A transformer intended primarily to provide neutral point for grounding purposes a. ground regulating transformer b. ground equalizer transformer c. grounding transformer d. ground fault transformer A grounding transformer maybe connected zigzag or 28. a. delta-delta b. wye-delta c. delta-wye d. wye-wye Of the lightning arresters sold in the market, which can handle much larger surge current 29. and excessive contamination of dirt. a. distribution arrester b. line arrester c. station arrester d. intermediate arrester 30. The insulation strength of an equipment is described as its a. basic insulation strength b. basic impulse stress c. basic insulation level d. basic insulation factor 31. When a circuit breaker is selected for a particular application which one of the following ratings is usually considered the most important? a. interrupting rating b. continuous rating c. maximum rms current up to 1 second d. maximum rms current up to 4 seconds 32. Periodic tests on protective relays are important to the stability of a system because the tests ensure that the a. disconnect switches will work properly b. "in" and "out" current will be balanced c. relays will operate in the proper sequence d. arcing contacts can carry the main currents 33. Which one of the following switchgear assemblies would most probably be used in a large industrial plant having several 600volt meters, an air-conditioning system, and an extensive lighting system? a. a low-voltage metal-enclosed switchgear b. switchgear with SF6 circuit breakers c. a station-type switchgear d. a metal-clad switchgear 34. If a fault occurs on substation high-voltage bus, the system is protected by a a. generator breaker b. station feer breaker
  - c. low-voltage power transformer breaker

#### d. high-voltage power transformer breaker

- 35. Which one of the following tests is preferred for checking switchgear insulation.
  - a. an AC high potential test
  - b. a DC high potential test
  - c. megaohmeter test
  - d. a power factor test
- 36. In a generating and distribution system, current balance is provided by protective zones which are:
  - a. used to eliminate reflections on short transmission lines
  - b. used to trip all circuit breaker in the system
  - c. isolated during fault by disconnect switches

#### d. monitored by differential relays

- 37. In switchgear application, the term "dead fronts" means that
  - a. the front and rear panels are hinged
  - b. an access door is at the end of the structure
  - c. no equipment is mounted on the front panel
  - d. energized parts are not exposed on the front panel
- 38. A circuit breaker that can be closed against a fault and operate at once, although the solenoid mechanism may continue through its closing operation, is said to be
   a. selective **b. trip-free** c. fully-rated d. DC operated
- 39. Which of the following steps is used for isolating a circuit breaker for maintenance purposes?

| <ul> <li>a. pull the substation fuses</li> </ul> | <ul> <li>b. turn off the main generator</li> </ul> |
|--|--|
| c. open the disconnect switches                  | d. ground the auxiliary contacts                   |

- 40.It is the reciprocal of the impedance<br/>a. conductancec. reactanced. admittance
- 41. In a method of measuring power in balanced 3-phase system using one wattmeter, total power is the wattmeter deflection multiplied by a. 1 **b. 2** c. 1.732 d. 1.5
- 42. In the current transformer method of measuring power in balanced 3-phase system using one wattmeter, total power is the wattmeter deflection multiplied by a. **1** b. 2 c. 1.7325 d. 1.5
- 43. The order of rotation of the coil voltage in a balanced 3-phase system is called a. alternation b. frequency c. phase shift d. **phase sequence**
- 44.An exchange of conductor positions in transmission line is calleda. Alternationb. bundlingc. Transpositiond. interpolation