

PAPER – I
ELECTRICIAN/ ELECTROPLATOR/ LIFT MECHANIC/ LIFT & ESCALATOR
MECHANIC/ WIREMAN
(THEORY & EMPLOYABILITY SKILLS)
SEMESTER – I
(Session 2017 – 2018) – NSQF LEVEL 5

TIME: 3 HRS.

MARKS: 200

**Note: This paper contains two parts – Part A & Part B.
Attempt all the questions. All questions carry equal marks.**

PART- A (THEORY)

(150)

Choose the correct answer:

- 1 What is the name of road safety sign?

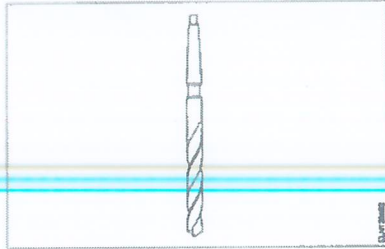


- a) Prohibition sign
c) Informatory sign
- b) Cautionary sign
d) Mandatory sign
- 2 What is the back ground colour of warning signs in the basic category?
a) Blue b) Yellow c) White d) Green
- 3 Which type of fire extinguisher is used for fire on electrical equipment?
a) Gas cartridge type b) Foam type
c) Halon type d) Stored pressure type
- 4 Which is the waste disposal method that produces heat?
a) Incineration b) Composting
c) Recycling d) Waste compaction
- 5 Which Personal Protective Equipment (PPE) is used for the protection from fumes?
a) Apron b) Goggles c) Nose mask d) Ear mask
- 6 What is the full form of BIS?
a) Board of Indian Standard b) Bureau of Indian Standard
c) Board of International Standard d) Bureau of International Standard
- 7 Which method is used to lift and move heavy loads?
a) Winches b) Machine moving platforms
c) Layers and Rollers d) Crane and slings
- 8 Which type of cold chisel is used for squaring materials at the corners?
a) Web chisel b) Diamond point chisel
c) Half round chisel d) Cross cut chisel

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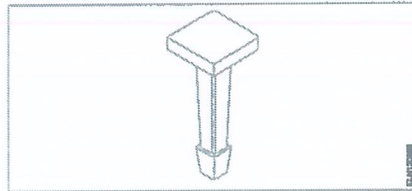
- 9 Which type of caliper is used to draw parallel lines along the outer edges of the materials?
- a) Inside caliper b) Outside caliper
c) Jenny caliper d) Spring joint caliper

- 10 What is the name of the drill bit?



- a) Flat drill bit
b) Taper shank bit
c) Countersink bit
d) Straight shank bit

- 11 What is the name of the stake used for general purpose in sheet metal work?



- a) Blow horn square stake
b) Hatchet stake
c) Square stake
d) Bevel edge square stake

- 12 What is the number 1.25 indicates in ISO metric fine thread M12 x 1.25?

- a) Diametric of the thread b) Length of the thread
c) Depth of the thread d) Pitch of the thread

- 13** What defect will occur in timber due to irregularity in growth of the branches?
a) Knot b) Cupping c) Cracking d) Twisting

- 14 How many electrons are there in the valence shell of a copper atom?
a) 2 b) 1 c) 8 d) 18

- 15 What is the effect of electric current on neon lamp?
- a) Heating effect b) Magnetic effect
- c) Gas ionization effect d) Chemical effect

- 16 What is the unit of insulation resistance?
a) Ohm b) Kilo ohm c) Milli ohm d) Mega ohm

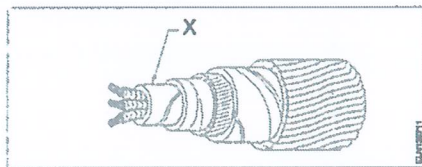
- 17 Which electrical device is the coarse excess current protection?
- a) Rewirable fuses
 - b) Cartridge fuses
 - c) Miniature Circuit Breaker (MCB)
 - d) High Rupturing Capacity (HRC) Fuses

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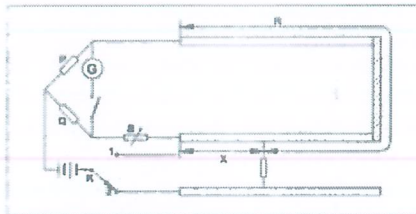
- 18 Which type of joint is used for extending the length of conductor in over head lines?
 a) Scarfed joint
 b) Aerial tap joint
 c) Britannia "T" joint
 d) Western Union joint
- 19 Which type of soldering flux is used for soldering aluminum conductors?
 a) Tallow
 b) Zinc chloride
 c) Ker-al-lite
 d) Sal ammonia rosin
- 20 What is the effect on molten solder due to repeated melting?
 a) Prevent slug formation
 b) Lead content reduced
 c) Tin content reduced
 d) Uneven flowing in joints

- 21 What will happen to PVC insulation in cable carries excess current continuously for long period?
 a) Voltage drop increases
 b) Insulation resistance decreases
 c) Insulation resistance increases
 d) Voltage drop decreases
- 22 Which method of cable laying is suitable for congested areas?
 a) Racks in air
 b) Direct in ground
 c) Along buildings
 d) Duct pipes

- 23 What is the name of the part marked 'X' in UG cables?



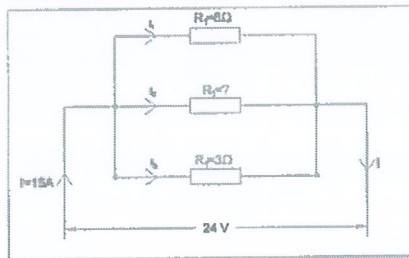
- a) Serving
 b) Bedding
 c) Lead sheath
 d) Armouring
- 24 What is the fault of U.G cable identified in the circuit?



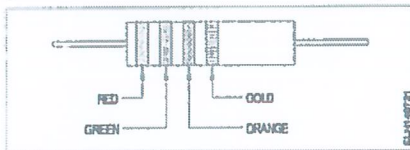
- a) Ground fault
 b) Open circuit fault
 c) Short circuit fault
 d) Weak insulation fault
- 25 What electrical quantities are related in Ohm's law?
 a) Current, resistance and power
 b) Current, voltage and resistance
 c) Current, voltage and resistivity
 d) Voltage, resistance and current density

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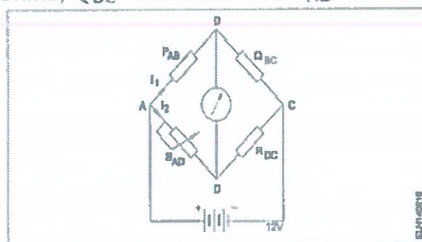
- 26 Calculate the value of resistance ' R_2 ' in the parallel circuit.



- a) $6\ \Omega$ b) $4\ \Omega$ c) $2\ \Omega$ d) $8\ \Omega$
- 27 What is the effect of the parallel circuit with one branch opened?
 a) Current will remain same
 b) No current will flow in that branch
 c) Whole circuit will not function
 d) Voltage drop increase in the opened branch
- 28 What is the unit of resistivity?
 a) ohm / cm b) ohm / cm^2 c) ohm – metre d) ohm / metre
- 29 Which type of resistor is used for Arc quenching protection in circuit breakers?
 a) Sensistors b) Varistors
 c) Thermistors d) Light dependent resistor (LDR)
- 30 Calculate the value of resistance by colour coding method.

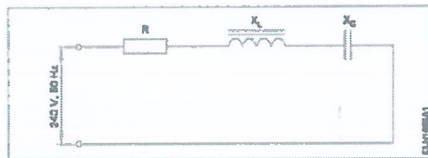


- a) $22 \times 10^3 \pm 10\%$ b) $23 \times 10^4 \pm 10\%$
 c) $36 \times 10^4 \pm 5\%$ d) $25 \times 10^3 \pm 5\%$
- 31 Calculate the unknown resistance " R_{DC} " in the Wheatstone bridge circuit, if $P_{AB}=400$ ohms, $Q_{BC}=200$ ohms and $S_{AD}=12$ ohms at balanced condition.



- a) $6\ \Omega$ b) $4\ \Omega$ c) $8\ \Omega$ d) $12\ \Omega$
- 32 What is the unit of capacitance?
 a) Mho b) Henry c) Farad d) Coulomb
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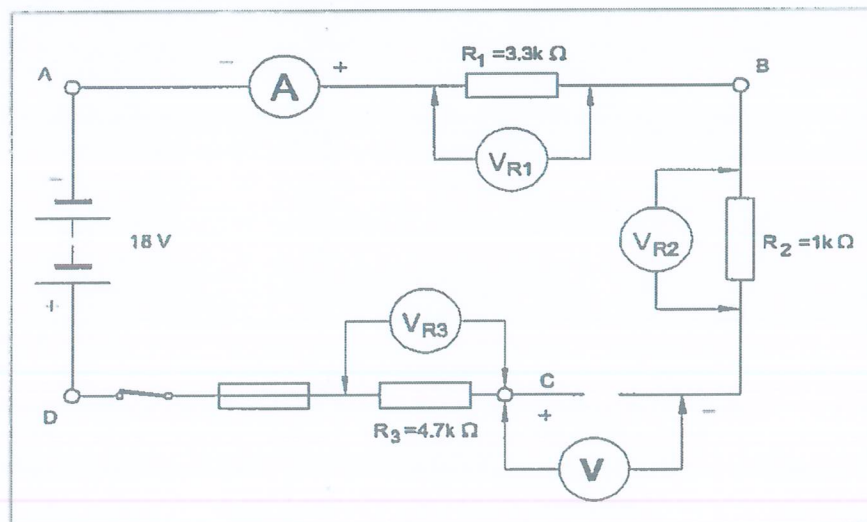
- 33 What is the capacitance value of a capacitor that requires 0.5 coulomb to charge to 35 volt?
a) 0.14 F b) 0.025 F c) 0.014 F d) 0.25 F
- 34 How the value of capacitance can be decreased?
a) Increasing the distance between the plates
b) Increasing the resistance of the plates
c) Increasing the plate area
d) Using high dielectric constant material
- 35 Which is the diamagnetic substance?
a) Air b) Water c) Steel d) Platinum
- 36 Which factor affects the polarity of the electromagnet?
a) Length of the coil b) Direction of current
c) Strength of current d) Strength of the magnetic field
- 37 What is the unit of Magneto Motive Force (MMF)?
a) Ampere / M^2 b) Ampere – M c) Ampere / turns d) Ampere – turns
- 38 What is the total inductance if 3 inductors (L_1 , L_2 and L_3) are connected in series?
a) $L_T = L_1 + L_2 + L_3$ b) $L_T = L_1 \times L_2 \times L_3$
c) $L_T = \frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3}$ d) $L_T = \frac{1}{L_1 + L_2 + L_3}$
- 39 What is the maximum value of voltage for 240 volt RMS?
a) 240V b) 415V c) 339.5V d) 376.8V
- 40 What is the condition for resonance in RLC series circuit? (Inductive reactance = ' X_L ', Capacitive reactance = ' X_C ')
a) $X_L > X_C$ b) $X_L = X_C$ c) $X_L < X_C$ d) $X_L > \sqrt{2} X_C$
- 41 What is the formula for Reactive Power (P_r) in an AC circuit?
a) $P_r = VI$ b) $P_r = VI \sin \theta$ c) $P_r = VI \cos \theta$ d) $P_r = \sqrt{2} VI$
- 42 Calculate the impedance of the circuit
 $R = 5\Omega$, $X_L = 36\Omega$ and $X_C = 24\Omega$.



- a) 69 Ω b) 65 Ω c) 13 Ω d) 12 Ω
- 43 What is the phase displacement in a 3-phase AC circuit?
a) 90° b) 270° c) 180° d) 120°

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- 44 What is the relation between the line voltage (V_L) and phase voltage (V_P) in star connected system?
 a) $V_L = V_P / \sqrt{3}$ b) $V_L = 3 V_P$ c) $V_L = \sqrt{3} V_P$ d) $V_L = V_P / 3$
- 45 Calculate the line current of the 3 phase 415V 50 Hz supply for the balanced load of 3000 watt at 0.8 power factor is connected in star.
 a) 8.5 A b) 5.2 A c) 4.5 A d) 3.4 A
- 46 What is the power factor in a 3 phase power measurement of two wattmeters showing equal readings?
 a) 0 b) 0.8 c) 0.5 d) 1
- 47 Calculate the power factor of coil having resistance of 24Ω , draws the current of 5A, at 240V/ 50Hz AC supply.
 a) 0.8 b) 0.5 c) 0.6 d) 0.3
- 48 Which file is used for sharpening the blunt teeth of a tenon saw?
 a) Square file b) Triangular file c) Round file d) Half round file
- 49 What is the reading of the voltmeter 'V'?



- a) 18 V b) 6 V c) 9 V d) 0 V
- 50 Which part of the underground cable is protecting the metallic sheath against corrosion?
 a) Serving b) Bedding c) Armouring d) Lead sheath
