

36/2014

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. For cutting a solid brass rod the most suitable pitch of the hacksaw blade is :
(A) 1.4 mm (B) 1 mm
(C) 1.8 mm (D) 0.8 mm
2. The correct proportion for servo cut 'S' in water for preparing soluble oil is with a concentration of :
(A) 20 % (B) 50 %
(C) 0.5 % (D) 5 %
3. The helical angle of twist drill determines the :
(A) Lip angle (B) Rake angle
(C) Chew angle (D) Cutting angle
4. The term surface finish refers to the :
(A) Heat treatment given on the surface (B) Shining of a machined surface
(C) Type of coating given on a surface (D) Roughness or smoothness of a surface
5. In the letter drill series, the size of the drill 'A' is equal to :
(A) 5 mm (B) 13 mm
(C) 5.944 mm (D) 6.08 mm
6. A chemical compound of carbon with iron is called :
(A) Pearlite (B) Cementite
(C) Austenite (D) Ferrite
7. If the main electric supply is not available, we can do arc welding with :
(A) Transformer set (B) Rectifier set
(C) Engine generator set (D) Motor generator set
8. The tail stock is offset by :
(A) Body of the tailstock (B) Spindle of the tailstock
(C) Base of the tailstock (D) Whole tailstock as a unit

9. In Lathe machine the follower steady has :
- (A) 2 pads (B) 3 pads
(C) 4 pads (D) No pads
10. The pattern on the work surface caused by the movement of the cutting tool is called :
- (A) Roughness (B) Waviness
(C) Roughness spacing (D) Surface texture
11. Sine bar is made of :
- (A) Nickel steel (B) High speed steel
(C) Stabilized chromium steel (D) High carbon steel
12. The abrasive used for honing of non-ferrous metal is :
- (A) Diamond (B) Silicon carbide
(C) Boron carbide (D) Aluminium oxide
13. The sensitiveness of spirit level depends upon the :
- (A) Curvature of glass tube (B) Length of glass tube
(C) Size of the bubble (D) Type of liquid
14. Application of a load for a specified period of TIME on an indentation tool is used in the :
- (A) Vicker hardness test (B) Rockwell hardness test
(C) Shore test (D) Brinell hardness test
15. The instrument used to measure high temperature in furnace :
- (A) Pyrometer (B) Thermometer
(C) Calorimeter (D) Barometer
16. The purpose of normalizing is to :
- (A) Soften the metal (B) Increase the toughness
(C) Refine the structure (D) Harden the surface
17. Small hole gauges are used to measure holes and slots :
- (A) Below 12.7 mm (B) Below 10 mm
(C) Below 20 mm (D) Below 20.7 mm

18. A drilling machine used by a carpenter for cabinet making is a :
- (A) Ratchet drilling machine (B) Radial drilling machine
(C) Sensitive drilling machine (D) Breast drilling machine
19. The reamer teeth are unevenly spaced because :
- (A) Easy to manufacture (B) Reduce chattering
(C) Help to cut metal gradually (D) To remove the reamer easily
20. Tab washers are used for :
- (A) Preventing vibration (B) Locking the nuts
(C) Self Locking (D) Fastening structural fabrication work
21. Cells are connected in parallel to :
- (A) Increase the voltage output (B) Increase the internal resistance
(C) Decrease the current capacity (D) Increase the current capacity
22. A material that is slightly repelled by a magnet is called :
- (A) Magnetic (B) Para magnetic
(C) Diamagnetic (D) Ferro magnetic
23. The Reactive Power can be calculated by using the formula :
- (A) $KVA \times \cos \phi$ (B) $KW \times \cos \phi$
(C) $KW \times \sin \phi$ (D) $KVA \times \sin \phi$
24. The metal used for the control spring in an electrical instrument is :
- (A) Steel (B) Nichrome
(C) Hard-drawn copper (D) Phosphor-bronze
25. An instrument using gravity control will read correctly if used in :
- (A) the vertical position only (B) the horizontal position only
(C) an inclined position only (D) any position
26. Calculate the unknown resistance (R_x) in a wheatstone bridge from the following data
 $P = 10$ ohms, $Q = 100$ ohms, $S = 600$ ohms. The unknown resistance is :
- (A) 6000 ohms (B) 600 ohms
(C) 60 ohms (D) 6 ohms

27. Sweep of ceiling fan refers to :
- (A) radius of circle formed by its rotation
 - (B) double the length of the blade
 - (C) the distance from the centre of motor to tip of blade
 - (D) double the distance from centre of motor to tip of blade
28. Which of the electrical instruments have to be connected in the same manner for measurement?
- (A) frequency meter and P.F. meter
 - (B) voltmeter and P.F. meter
 - (C) voltmeter and frequency meter
 - (D) wattmeter and voltmeter
29. Capacitance is not affected by :
- (A) plate area
 - (B) distance between plates
 - (C) di-electric material
 - (D) frequency
30. The resistance of an aluminium wire of a given length and diameter when compared with that of copper wire is :
- (A) same in the case of small diameter wires only
 - (B) more irrespective of the sizes taken
 - (C) less irrespective of the sizes taken
 - (D) equal for certain specified length and diameter
31. A choke coil of an operating fluorescent lamp is short circuited. What is the consequence?
- (A) the lamp becomes brighter
 - (B) the lamp becomes less bright
 - (C) the current becomes so large that it damages the tube
 - (D) the short circuit is noticed only after the lamp is switched on again
32. The unit of inductance is henry and the unit of inductive reactance is :
- (A) henry
 - (B) henry per metre
 - (C) ohms
 - (D) ohms per henry
33. A double capacitor motor of 0.5 kW when connected to 240 V 50 Hz mains at power factor 0.8 takes a full load current of :
- (A) 1.8 A
 - (B) 2.0 A
 - (C) 2.3 A
 - (D) 2.6 A

34. Which type of fire extinguisher is to be used on electrical equipment or installation under fire?
- (A) foam type (B) halon type
(C) gas cartridge water filled type (D) stored pressure water filled type
35. What is the type of winding wire you would select for rewinding the armature of a mixer/liquidizer motor?
- (A) single silk covered copper wire (B) single cotton covered copper wire
(C) super enameled copper wire (D) double silk covered winding wire
36. Current drawn from the supply by a permanent capacitor motor will be :
- (A) lagging the voltage less than 90° (B) lagging the voltage by 90°
(C) leading the voltage by 90° (D) in-phase with the voltage
37. Which one of the following is an active component in an electric circuit?
- (A) inductor (B) capacitor
(C) resistor (D) diode
38. What is the type of supply on which a universal motor can work?
- (A) A.C. supply only (B) D.C. supply only
(C) both on A.C. and D.C. supply (D) only on rectified D.C. supply
39. You are repairing a pump that lifts too less water than earlier. What could be the probable reason for this fault?
- (A) level of water in pump is too high
(B) impeller damaged
(C) pump is running in reverse direction
(D) motor running fast due to higher frequency
40. As a general rule before connecting the meters to the circuit, we should see whether the pointer is at zero or not. The rule is not applicable in case of :
- (A) Multimeter in voltage range (B) Watt meter
(C) Milli-ammeter (D) Megger
41. Traps are classified according to their :
- (A) Depth of water (B) Shape and use
(C) Material (D) Water seal

42. How many numbers of tapes containing in a hand tap set:
(A) Three (B) Two
(C) One (D) Four
43. Which tool is used to hold larger diameter pipes?
(A) Pipe vice (B) Leg vice
(C) Hand vice (D) Chain pipe vice
44. Which device is used to burning the refuse :
(A) Incinerator (B) Kiln
(C) Humidifier (D) Furnace
45. ————— is practically the only flux used for brazing :
(A) Zinc chloride (B) Ammonium chloride
(C) Borax (D) Tallow
46. What happens to socket end in expansion joint when pipe contracts?
(A) Moves forward (B) Moves backwards
(C) No movement (D) Breaks down
47. Which joint is used for temporary pipe line :
(A) Screwed joint (B) Wiped joint
(C) Collar joints (D) Flanged joints
48. Cast Iron detachable joints are used to join :
(A) Cast iron pipes (B) Concrete pipes
(C) AC pressure pipes (D) GI pipes
49. Which device is used for tapping water from main pipe line for fire fighting purpose :
(A) Hydrants (B) Sluice valve
(C) Scour valve (D) Blow off valve
50. Which type water treatment process is used for removing suspended impurities like silt, clay, sand etc :
(A) Screening (B) Coagulation
(C) Filtration (D) Plain sedimentation

51. Bib cock spindle continuously slipping when the tap is turned and tap does not shut off :
- (A) Spindle thread worn out (B) Spindle bent
(C) Stuffing box packing is dry (D) Valve loose on the spindle
52. Which fitting is used to supply stream of water from bottom sections of bowl in bidet?
- (A) Ferrule (B) Angle cock
(C) Jet (D) Fountain
53. Sump is a underground structure which is used to :
- (A) Store sewage (B) Collecting effluents
(C) Collecting waste water (D) Store water
54. The lowermost level or surface of a sewer is known as :
- (A) Benching (B) Invert
(C) Spigot (D) Ferrule
55. _____ is used to prevent earth sliding during trench excavation :
- (A) Timbering & shoring (B) Strut
(C) Ledger (D) Platform
56. What type of flux is used for soldering copper sheets, brass sheets and tin plates?
- (A) Hydrochloric acid (B) Zinc chloride
(C) Ammonium chloride (D) Resin
57. What type of chisel is used for paring and finishing joints?
- (A) Firmer chisel (B) Bevel-edge
(C) Paring chisel (D) Mortise chisel
58. What is used for disposing the effluent of septic tank :
- (A) Cesspool (B) Leach pit
(C) Soak pit (D) Manhole
59. Which filter is used in small industrial plants?
- (A) Slow sand filter (B) Rapid sand filter
(C) Sluice filter (D) Pressure filter

60. What tool is used to cut any diameter of pipe :
- (A) Pipe cutter (B) Multi-wheel chain pipe cutter
(C) Plumber's saw (D) Hack saw
61. Unit of power is :
- (A) Newton (B) Second
(C) Joule (D) Watt
62. One Newton is equal to :
- (A) 10^2 dynes (B) 10^3 dynes
(C) 10^5 dynes (D) 10^4 dynes
63. Surface area of sphere is :
- (A) $\frac{1}{3} \pi r^2 h$ (B) $\frac{4}{3} \pi r^3$
(C) $\frac{2}{3} \pi r^3$ (D) $4 \pi r^2$
64. The resultant R of two forces P and Q acting at an angle θ to each other is given by the equation:
- (A) $R^2 = P^2 + Q^2 - 2PQ \cos \theta$ (B) $R^2 = P^2 + Q^2 + PQ \cos \theta$
(C) $R^2 = P^2 + Q^2 + 2PQ \cos \theta$ (D) $R^2 = P^2 + Q^2 - PQ \cos \theta$
65. The product of $1\frac{1}{2} \times \frac{1}{4}$ is equal to :
- (A) $\frac{8}{3}$ (B) $\frac{3}{8}$
(C) $\frac{3}{4}$ (D) $2\frac{1}{4}$
66. 10 side polygons are called :
- (A) Decagon (B) Octagon
(C) Pentagon (D) Hexagon
67. The efficiency of first system of pulley is :
- (A) $\frac{W}{2n \times p} \times 100$ (B) $\frac{W}{2 \times p} \times 100$
(C) $\frac{W}{23 \times p} \times 100$ (D) $\frac{2 \times p}{w} \times 100$

68. $\sqrt{5\sqrt{}} = :$
- (A) 1.236 (B) 22.36
(C) 0.236 (D) 2.236
69. The value of $0.8 + 0.008 + 0.08$ is :
- (A) .888 (B) 1.888
(C) 0.888 (D) 8.88
70. The value of $\sin(A + B)$ is equal to :
- (A) $\sin A \cos B - \cos A \sin B$ (B) $\sin A \cos B + \cos A \sin B$
(C) $\cos A \cos B + \sin A \sin B$ (D) $\cos A \sin B - \sin A \cos B$
71. Annealing is done :
- (A) To harden the steel (B) To normalize grains in the steel
(C) To soften steel for machining (D) To toughen the steel
72. The perimeter of a rectangle having sides 'x' and 'y' is :
- (A) $2xy$ (B) $2x + 2y$
(C) $x^2 + y^2$ (D) $x + y$
73. Area of the scalene triangle is :
- (A) $\frac{4}{3} 4 \pi^3$ (B) $\frac{1}{3} 4 \pi r^2 h$
(C) $\sqrt{s(s-a)(s-b)(s-c)}$ (D) $\frac{\sqrt{3a^2}}{4}$
74. Galena is the ore of :
- (A) Tin (B) Lead
(C) Copper (D) Chromium
75. $6 \div 3$ by $4 = :$
- (A) 4 (B) 0.5
(C) 2.5 (D) 8

76. The Fahrenheit scale is divided into :
- (A) 180 equal parts (B) 100 equal parts
(C) 80 equal parts (D) 360 equal parts
77. Dynamic friction is always :
- (A) Less than limiting friction (B) More than static friction
(C) More than limiting friction (D) None of the above
78. Latent heat of vaporization of water at 100°C is :
- (A) 9720 cal/g (B) 80 cal/g
(C) 1440 cal/g (D) 540 cal/g
79. $\frac{1}{2} + 1\frac{3}{4} = \frac{1}{8} + x$ find x :
- (A) $1\frac{7}{8}$ (B) $\frac{5}{4}$
(C) $\frac{9}{8}$ (D) $\frac{4}{5}$
80. The moment about a point in its line of action is :
- (A) 1 (B) 0
(C) -1 (D) None of these
81. Who among the following has started the Public Work Department in India in 1848?
- (A) Lord William Bentick (B) Lord Dalhousie
(C) Lord Wellesley (D) Lord Cornwallis
82. Who called Ayyankali as 'Pulaya Raja'?
- (A) Jawaharlal Nehru (B) Sree Narayana Guru
(C) K. Kelappan (D) Mahatma Gandhi
83. Who was popularly known as 'Superintendent Ayya'?
- (A) Thycaud Ayya Gurukkal (B) Ayyankali
(C) Vakkom Moulavi (D) Ayya Vaikuntar