1. ________ is a device for applying heat to melt solder in attaching two metal parts.
   A) Heater
   B) Electric iron
   C) Induction heater
   D) Soldering iron

2. ________ is a place where the soldering iron is placed during usage.
   A) Tool Box
   B) Soldering Tool Box
   C) Soldering Tool Stand
   D) Soldering Box

3. ________ is used in removing soldered wires and components on printed circuit boards for troubleshooting and repair purposes.
   A) Desoldering tool
   B) Soldering iron
   C) Plier
   D) Cutter

4. Where do you put the soldering iron when you have finished with it?
   A) On the desk
   B) On a piece of paper
   C) On the floor
   D) In the stand

SPACE FOR ROUGH WORK
5. Instrument which transfers energy to electric charges in a circuit is
   A) battery
   B) voltmeter
   C) ammeter
   D) galvanometer

6. A thermistor is a type of
   A) resistor
   B) switch
   C) battery
   D) power supply

7. The most commonly used semiconductor is
   A) Germanium
   B) Silicon
   C) Carbon
   D) Sulphur

8. The capacity of a cell is measured in
   A) amperes
   B) ampere-hour
   C) watts
   D) watt-hours

9. Cells are connected in series in order to
   A) increase the voltage rating
   B) increase the current rating
   C) increase the life of cells
   D) none of the above
10. The transformer turns ratio determines
   A) the reflected impedance
   B) the ratio of primary and secondary currents
   C) the ratio of primary and secondary voltages
   D) all of these

11. ‘ROM’ stands for
    A) Read Only Memory
    B) Random Only Memory
    C) Readily Oral Memory
    D) Random Available Memory

12. Material used for construction of transformer core is
    A) Wood
    B) Copper
    C) Aluminium
    D) Silicon steel

13. A rectifier is a
    A) Bilateral device
    B) Linear device
    C) Non-linear device
    D) Passive device
14. 2's complement of binary 0101 is
   A) 1110  B) 1010  
   C) 1011  D) 0000

15. An ideal Op-amp has ________ input impedance.
   A) Infinite  B) High  
   C) Low  D) None of these

16. Maximum efficiency of Class B amplifier is
   A) 50%  B) 78.5%  
   C) 80%  D) 25%

17. In an Op-amp CMRR stands for
   A) Common Mode Rejection Rate  B) Common Mode Rejection Ratio
   C) Cross Mode Rejection Rate  D) Cross Mode Rejection Ratio

18. With Ohm's Law no change in resistance means that Current and Voltage will be
   A) Directly proportional  B) Universally proportional
   C) Same  D) Unable to produce energy
19. What is one disadvantage of an S-R flip-flop?
   A) It has no enable input
   B) It has an invalid state
   C) It has no clock input
   D) It has only a single output

20. With regard to a D latch
   A) the Q output follows the D input when EN is low
   B) the Q output is opposite to the D input when EN is low
   C) the Q output follows the D input when EN is high
   D) the Q output is high regardless of EN's input state

21. Which is not a characteristic of a shift register?
   A) Serial in/parallel in
   B) Serial in/parallel out
   C) Parallel in/serial out
   D) Parallel in/parallel out

22. A universal shift register can shift
   A) From left to right
   B) From right to left
   C) Both A) and B)
   D) None of above
23. What is the function of the comparators in the 555 timer circuit?
   A) to compare the output voltages to the internal voltage divider
   B) to compare the input voltages to the internal voltage divider
   C) to compare the output voltages to the external voltage divider
   D) to compare the input voltages to the external voltage divider

24. What does the discharge transistor do in the 555 timer circuit?
   A) charge the external capacitor to stop the timing
   B) charge the external capacitor to start the timing over again
   C) discharge the external capacitor to stop the timing
   D) discharge the external capacitor to start the timing over again

25. A counter is fundamentally a sequential circuit that proceeds through the predetermined sequence of states only when input pulses are applied to it.
   A) Register
   B) Memory unit
   C) Flip-flop
   D) Arithmetic logic unit
26. In positive logic, 1 represents
A) ON  B) OFF  C) A low voltage  D) A false statement

27. A P-N Junction photodiode is
A) operated in forward direction  B) encased in an opaque package  
C) a very fast photo detector  D) dependant on thermally – generated minority carrier

28. Bulk type photoconductive cell have
A) wide spectral response  B) small response time  C) high cost  D) high dark to light resistance ratio

29. __________ is a transducer.
A) Loud Speaker  B) Cell Phone  C) Microphone  D) Both A) and C)

30. The transducers which requires an external power and their output is a measure of some variation such as resistance, inductance, capacitance etc., are called as
A) Active transducer  B) Primary sensor  C) Passive transducer  D) Self generating transducer
31. **Strain Gauge is a _______ device.**
   A) Electrical
   B) Electronics
   C) Mechanical
   D) A) and B)

32. **The signal to be observed on the screen of an oscilloscope is applied**
   A) Across its X-plate
   B) Across its Y-plate
   C) To the horizontal amplifier
   D) To the trigger circuit

33. **Digital instruments use _______ circuits and techniques to obtain measurements.**
   A) Analog
   B) Logic
   C) Linear
   D) Optical

34. **CMOS family uses only**
   A) MOSFET and resistors
   B) NMOS circuits
   C) MOSFETs
   D) Bipolar transistors
35. Which among the below mentioned assertions is not a way of cross-talk reduction while designing digital PCBs?
   A) Decrease in the distance between conductors
   B) Shielding of clock lines with guard strips
   C) Reduction in the loop area of circuits
   D) Avoid running of parallel traces for longer distances especially for asynchronous signals

36. Full form of TVRO is
   A) Television Receive Only
   B) Television Read Only
   C) Time Vision Receive Only
   D) Time Vision Read Only

37. Active information is transmitted in TV signals by
   A) AM
   B) PM
   C) PAM
   D) FM

38. The most suitable device for high frequency inversion in SMPS is
   A) BJT
   B) IGBT
   C) MOSFET
   D) GTO
   A) 2.4 GHz ISM  
   B) 2.5 GHz ISM  
   C) 2.6 GHz ISM  
   D) 2.7 GHz ISM

40. Who is the inventor of cell phone?
   A) Martin Cooper  
   B) Joel Engel  
   C) Robert  
   D) Willson

41. The maximum permissible transmission rate of message is directly proportional to
   A) signal voltage  
   B) signal current  
   C) signal power  
   D) channel noise

42. The destination is the
   A) transmitter  
   B) receiver  
   C) conductor  
   D) none

43. Sometimes computers and cache registers in a food mart are connected to a UPS system. What does UPS mean?
   A) United Parcel Service  
   B) Uniform Product Support  
   C) Under Paneling Storage  
   D) Uninterruptable Power Supply

---

**SPACE FOR ROUGH WORK**

---
44. In cables, water is prevented from filling the spaces with ___________ resistant compounds.
A) moisture  B) pressure  C) temperature  D) stress

45. Why are plastic clad silica fiber optic cables not used widely?
A) Difficulty in connector application  B) Due to excessive plasticity in cladding  C) Insolubility in organic solvents  D) All of the above

46. Which answer from the following list is the major advantage of switched mode power supplies over series regulated supplies?
A) Switched mode supplies create & retain higher amplitude ripple waveforms than series regulators  
B) Switched mode supplies dissipate less power in the control element than series regulators  
C) Switched mode supplies provide better regulation at low power output than series regulators  
D) Switched mode supplies work better in low output conditions so are more efficient than series regulators
47. The velocity of light is independent of
   A) Wavelength
   B) Medium refractive index
   C) Frequency
   D) All of above

48. Splices are generally _______ fibre joints.
   A) Temporary
   B) Hard
   C) Permanent
   D) Butt

49. What is/are the consequences of driving the LED in the form of an output function?
   A) Pin sources the current when made low without glowing LED
   B) Pin sinks the current when made high without glowing LED
   C) Pin sources the current when made high by glowing LED
   D) Pin sinks the current when made low by glowing LED

50. LCD monitors often have a smaller _______ than CRT monitors.
   A) refresh rate
   B) viewing angle
   C) color depth
   D) price
51. उपर्युक्त चित्र के प्रतीक को दर्शाता है।
A) प्रथम कोण प्रक्षेपण
B) तृतीय कोण प्रक्षेपण
C) द्वितीय कोण प्रक्षेपण
D) उपरोक्त में से कोई नहीं

52. यदि काटी गई शीट के लिए A4 आकार 210 x 297 दर्शाता है, तो काटी गई शीट का A3 आकार है
A) 420 x 297  B) 210 x 594
C) 297 x 420  D) 594 x 210

53. एक कटिंग-प्लेन लाइन को लाइन के रूप में दर्शाता है।
A) निरंतर मोटी
B) निरंतर पतली
C) लम्बी चैन पतली लाइन
D) लम्बी चैन लाइन अंत में मोटी और बाकी जगह पतली

54. ड्राइंग में स्केल 1:100 वास्तव में है।
A) पूर्ण स्केल
B) घटाया गया स्केल
C) बढाया गया स्केल
D) समान स्केल

The figure above represents symbol for
A) First Angle Projection
B) Third Angle Projection
C) Second Angle Projection
D) None of the above

52. If the sheet size A4 represents 210 x 297 for trimmed sheet, then A3 size of trimmed sheet is
A) 420 x 297  B) 210 x 594
C) 297 x 420  D) 594 x 210

53. A Cutting Plane Line is represented in the line form of
A) Continuous Thick
B) Continuous Thin
C) Long Chain Thin Line
D) Long chain line thick at ends and thin elsewhere

54. In the drawings, the scale 1:100 is actually
A) Full scale
B) Reduced scale
C) Enlarged scale
D) Same scale
55. What is first aid?
   A) Initial care of the ill or injured
   B) First response to natural disasters
   C) How to use a first aid kit
   D) Medical treatment of an injured person

56. The thickness of the layer of insulation on the conductor in cables depends upon
   A) Reactive power
   B) Power factor
   C) Voltage
   D) Current carrying capacity

57. In case of three core flexible cable, the colour of the neutral is
   A) Blue
   B) Black
   C) Brown
   D) Red

58. 10Ω (Ohm) of the resistance 5A current, then find the power.
   A) 50 watt
   B) 250 watt
   C) 500 watt
   D) 100 watt
51. The figure above represents symbol for:
A) First Angle Projection
B) Third Angle Projection
C) Second Angle Projection
D) None of the above

52. If the sheet size A4 represents 210 x 297 for trimmed sheet, then A3 size of trimmed sheet is:
A) 420 x 297
B) 210 x 594
C) 297 x 420
D) 594 x 210

53. A Cutting Plane Line is represented in line form of:
A) Continuous Thick
B) Continuous Thin
C) Long Chain Thin Line
D) Long chain line thick at ends and elsewhere

54. In the drawings, the scale 1:100 is applied:
A) Full scale
B) Reduced scale
C) Enlarged scale
D) Same scale
63. What part of Soldering Iron shouldn’t you touch?
   A) The plug  B) The handle  
   C) The metal part  D) The wire

64. are hand tools specifically designed to insert and tighten or to loosen and remove screws.
   A) Pliers  B) Screwdrivers  
   C) Electric drill  D) Hammers

65. is used for holding, bending and stretching the lead of electronic component or connecting wires.
   A) Cutting Plier  B) Combinational Plier  
   C) Stripper  D) Long Nose Plier

66. is tapered in width and thickness, coming to a point and is narrower than a standard half round and used for filing inside of rings.
   A) Flat File  B) Half Round File  
   C) Round File  D) None of the above
67. ओम्मिटर एक ________ है।
   A) गतिमान लोहा उपकरण
   B) गतिमान ब्यायत उपकरण
   C) गतिमान डायनेमोमीटर
   D) गतिमान प्लेट उपकरण

68. एक गतिमान लोहा उपकरण का प्रयोग ________ के लिए किया जा सकता है।
   A) केवल DC
   B) केवल AC
   C) AC और DC दोनों
   D) ना तो AC न ही DC

69. निम्नलिखित में से कौन सा एक ऑप्टिकल रिसीवर द्वारा न्यूटम्स गलती के साथ डाटा संकेत करने के लिए प्रयोग किया जाता है?
   A) फोटोट्रायोड
   B) सिम्पल प्रोसेसिंग परिपथ
   C) एलाइडी
   D) लैनरियर परिपथ

70. एक ऑप्टिकल फाइबर में, सांख्यिकीय द्वारा की अवधारणा ________ की क्षमता का वर्णन करने के लिए प्रयुक्त होती है।
   A) प्रकाश का फैलना
   B) प्रकाश का बिखरना
   C) प्रकाश का एक दिशा में चलना
   D) प्रकाश संध्वाण

67. An ohmmeter is a
   A) Moving iron instrument
   B) Moving coil instrument
   C) Moving dynamometer
   D) Moving plate instrument

68. A moving iron instrument can be used for
   A) DC only
   B) AC only
   C) Both AC and DC
   D) Neither AC nor DC

69. Which among the following is provided by an optical receiver for the regeneration of data signal with minimum error?
   A) Photodiode
   B) Signal processing circuit
   C) LED
   D) Linear circuitry

70. In an optical fibre, the concept of numerical aperture is applicable in describing the ability of
   A) Light scattering
   B) Light dispersion
   C) Light polarisation
   D) Light collection

SPACE FOR ROUGH WORK
71. Which battery is used in aeroplanes?
   A) Dry cell battery
   B) Lead acid battery
   C) Edison cell
   D) None of these

72. A hard disk is divided into tracks which are further subdivided into
   A) Clusters
   B) Sectors
   C) Vectors
   D) None

73. A Transformer
   A) Changes DC to AC
   B) Steps up or down AC Voltages and Current
   C) Steps up or down DC Voltages and Current
   D) Changes AC to DC

74. A special transformer used to convert unbalanced signals to balanced signals is the
   A) autotransformer
   B) center-tapped transformer
   C) step-AC transformer
   D) balun
75. When a diode is forward biased, the voltage across it
   A) is directly proportional to the current
   B) is directly proportional to the source voltage
   C) remains approximately the same
   D) is inversely proportional to the current

76. The 7812 regulator IC provides
   A) 5 V
   B) −5 V
   C) 12 V
   D) −12 V

77. Which rectifier requires four diodes?
   A) Half-wave voltage doublers
   B) Full-wave voltage doublers
   C) Full-wave bridge circuit
   D) None of the above

78. Voltage regulators keep a constant output voltage when the input of the load varies within limits.
   A) DC
   B) AC
   C) Ripple
   D) None of the above

79. The 7905 regulator IC provides
   A) 5 V
   B) −5 V
   C) 12 V
   D) −12 V
80. _______ gate is also known as universal gate.
   A) NAND  B) NOT  C) AND  D) OR

81. FET is a _______ device.
   A) Bipolar  B) Unipolar  C) Four terminal  D) None of these

82. The output of AND gate is high because
   A) Both inputs are low  B) One input is high and other is low  C) Both inputs are high  D) None of the above

83. In an amplifier it conducts during the cycle from 0 to 90 and again from 180 to 270, the amplifier will be termed as
   A) Class A  B) Class B  C) Class C  D) Class AB

84. Convert 8B3F₁₆ to binary.
   A) 35647  B) 011010  C) 1011001111100011  D) 1000101100111111
85. The ____________ can conduct current in either direction and is turned on when a breakover voltage is exceeded.
   A) SCR  B) SCS  C) Diac  D) Triac

86. SCR may be considered as
   A) Two diode model  B) Transistor model  C) Two transistor model  D) None of these

87. BJT is _______ device.
   A) Bipolar  B) Unipolar  C) Constant current  D) Constant voltage

88. Triac has
   A) one terminal  B) two terminal  C) three terminal  D) four terminal

89. Which is longest?
   A) Bit  B) Byte  C) Nibble  D) Word
90. Simplest registers only consists of
   A) Counter  B) EPROM
   C) Latch    D) Flip-flop

91. Three decade counter would have
   A) 2 BCD counters  B) 3 BCD counters
   C) 4 BCD counters  D) 5 BCD counters

92. Device having output conduction as BJT but voltage controlled like MOSFET is called
   A) FET  B) JFET
   C) IGBT  D) Both A) and B)

93. Which circuit is used for obtaining desired output waveform in operational amplifier?
   A) Clipper  B) Clamper
   C) Peak amplifier  D) Sample and hold

94. An OR gate linked with an inverter is called
   A) NOT gate  B) NOR gate
   C) NAND gate  D) AND gate
95. What form of displacement sensors are shown?
A) Inductive proximity sensors
B) Absolute position encoders
C) Opto-switches
D) Potentiometers

96. Fastest Logic
A) TTL
B) LSI
C) CMOS
D) ECL

97. Which convert analog to digital?
A) ADC
B) DAC
C) Comparator
D) Operational amplifier

98. A Microphone is classified as a __________ transducer.
A) Thermal
B) Optical
C) Magnetic
D) Acoustical
99. आवाज की तीव्रता _________ में व्यक्त किया जाता है।
   A) डेसीबल  B) वॉट  
   C) वॉट  D) फॉन

100. _______ के लिए आपूर्ति तालिकाओं के अनुसार उच्च करंट सरकार के कौन से नजदीक स्थित किये जाते हैं या रखे जाते हैं?
    A) गम्भीर होने के लिए  
    B) विचलित करने के लिए  
    C) रास्ते की संख्या कम करने के लिए  
    D) उपयोग सभी

101. पीसीबी की वास्तविक लागत का मूल्यांकन _______ के आधार पर किया जा सकता है।
    A) पीसीबी आकार और मंटेचर  
    B) लेयर्स की संख्या  
    C) पीसीबी पर मार्ग  
    D) उपयोग सभी

102. बदलने से आने-वाली कठिनाइयों को रोकने के लिए किस प्रकार के पीसीबी पर उपयोग साइड पर न्यूनतम सोल्डिंग की जरूरत होती है?
    A) सिंगल साइड वीसीबी  
    B) डबल साइड वीसीबी  
    C) A और B दोनों  
    D) उपयोग में से कोई नहीं

---

TR – B (Electronics Mechanic)

99. Noise level is expressed in
   A) Decibel  B) Watt  
   C) Volt  D) Phon

100. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for
    A) Removal of heat  
    B) Isolation of stray current  
    C) Reduction of path length  
    D) All of the above

101. The actual cost of PCB can be evaluated on the basis of
    A) PCB size and material  
    B) Number of layers  
    C) Vias on PCB  
    D) All of the above

102. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
    A) Single-sided PCB  
    B) Double-sided PCB  
    C) Both A) and B)  
    D) None of the above

---

SPACE FOR ROUGH WORK

-25-

Tradesman – B
103. Which should be used as a switch in low power SMPS?
   A) GTO       B) MOSFET
   C) TRIAC     D) Thyristor

104. Backlight source for LCD TV is
   A) Fluorescent Lamp
   B) LED
   C) Photodiode
   D) OLED

105. Viewing angle of LED TV is ________ than LCD TV.
   A) More
   B) Same
   C) Less
   D) None of these

106. With the E-MOSFET, when gate input voltage is zero, drain current is
   A) At saturation
   B) Zero
   C) $I_{DSS}$
   D) Widening the channel

107. GSM stands for
   A) Group Special Mobile
   B) Global System for Mobile
   C) Global Special for Mobile
   D) None of the above
108. In an optical network, increase in the number of lasers ________ the bit rate.
A) Increases
B) Stabilizes
C) Decreases
D) None of the above

109. Which among the following misalignments give/gives rise to the occurrence of splice loss?
A) Longitudinal separation between the end-faces of fiber
B) Angular tilt between fiber ends
C) Transverse offset between fiber ends
D) All of the above

110. Basically, solitons are pulses which propagate through the fiber without showing any variation in
A) Amplitude
B) Velocity
C) Shape
D) All of the above

111. Which optical devices are adopted or applicable for routing signals from one waveguide to another?
A) Optical Combiner
B) Optical Splitter
C) Optical Coupler
D) None of the above
12. Which answer from the following list is a disadvantage of switched mode power supplies compared with series regulated supplies?

A) Switched mode supplies are less suitable for high power applications.
B) Switched mode supplies are more expensive to implement than series regulated supplies.
C) It is more difficult to prevent high frequency electrical interference in switched mode supplies.
D) Over voltage protection is not possible in switched mode power supplies.

13. What is the full form of SMPS?

A) Switch Mode Power Supply
B) Simple Mode Power Supply
C) Storage Mode Power Supply
D) Storage Mode Power Shortage

14. An optical fibre is a __________ rod usually made of glass or a clear plastic.

A) Transparent
B) Hard
C) Rough
D) Plastic
115. The ________ monitor is similar to the LCD monitor, but has a phosphorescent film between the layers.
A) Electro Luminescent Displays (ELD)
B) Plasma displays
C) Paper-white displays
D) Thin-film transistor

116. Which pin of the LCD is used for adjusting its contrast?
A) pin no. 1
B) pin no. 2
C) pin no. 3
D) pin no. 4

117. How many rows and columns are present in a 16*2 alphanumeric LCD?
A) rows = 2, columns = 32
B) rows = 16, columns = 2
C) rows = 16, columns = 16
D) rows = 2, columns = 16
**TR – B (Electronics Mechanic)**

118. The Image shown below, is an assembly showing

- A) Stud and Nut
- B) Stud and Bolt
- C) Screw and Nut
- D) Bolt and Nut

119. If Helmets, Goggles and Gloves are used by worker, then it means they are

- A) Fire Fighters
- B) Construction Site Workers
- C) Metro Site Workers
- D) Following Safety Standards

120. To prepare a hole for cut tapping the metric thread M8, the drill size should be

- A) Equal to 8 mm
- B) Less than 8 mm
- C) More than 8 mm
- D) None of the above