

Railway Recruitment Cell

Post Name : 02A-Electronics Mechanic

Exam Code : MASSXALM

Exam Date : 21-06-2024

Exam Time : 11:15AM

Question No. 1

The device used for locating open or short circuits in a circuit is the-

- A) Voltmeter
- B) Ammeter
- C) Power meter
- D) Multimeter

Answer Key: D

Question No. 2

Which of the following LED emits invisible light?

- A) Infrared LED
- B) LED
- C) Bicolour LED
- D) Tricolour LED

Answer Key: A

Question No. 3

The dissipation factor of a capacitor is-

- A) 1 / Quality factor
- B) 1 / Reactance
- C) Reactance / Resistance
- D) Reactance / Quality factor

Answer Key: A

Question No. 4

How is the Zener diode connected in a voltage regulator circuit?

- A) Forward bias
- B) Reverse bias
- C) Either forward or reverse bias
- D) None of the options

Answer Key: B

Question No. 5

Which of the resistor types is normally used for general-purpose applications?

- A) Metal film resistors
- B) Carbon resistors
- C) Wire-wound resistors
- D) Carbon film resistors

Answer Key: B

Question No. 6

The purpose of the open-circuit test is to determine the \_\_\_\_\_ of the transformer.

- A) Copper loss
- B) Winding resistance
- C) No-load current and losses
- D) Winding reactance

Answer Key: C

### Question No. 7

Which is used to test the specific gravity of a battery?

- A) Line tester
- B) Lucimeter
- C) Thermometer
- D) Hydrometer

Answer Key: D

### Question No. 8

\_\_\_\_\_ is an example of an insulator material.

- A) Gold
- B) Silver
- C) Copper
- D) Mica

Answer Key: D

### Question No. 9

What is the color code of 340 k $\Omega$  resistor with 5% tolerance?

- A) Orange, green and yellow with gold
- B) Orange, yellow and yellow with gold
- C) Orange, yellow and green with gold
- D) Orange, blue and orange with gold

Answer Key: B

### Question No. 10

Induction relays are widely used for protective relaying purposes involving \_\_\_\_\_ quantities.

- A) DC
- B) AC
- C) Both DC and AC
- D) Pulsating DC

Answer Key: B

### Question No. 11

The PN junction diode is used as a/an-

- A) Modulator
- B) Oscillator
- C) Rectifier
- D) Amplifier

Answer Key: C

### Question No. 12

Which of the following is an application of the emitter follower?

- A) Voltage amplification
- B) Oscillator
- C) Summing amplifier
- D) Impedance matching

Answer Key: D

### Question No. 13

Which of the following oscillators is used in microprocessors?

- A) Crystal oscillator
- B) Twin T oscillator
- C) Wien-bridge oscillator
- D) RC phase shift oscillator

Answer Key: A

Question No. 14

What are the basic components required for a clipping circuit?

- A) Transistor and diode
- B) Diode and resistor
- C) Diode and capacitor
- D) Capacitor and resistor

Answer Key: B

Question No. 15

What should be the biasing of the LED to emit light?

- A) Reverse bias
- B) Forward bias
- C) Both reverse and forward biasing required
- D) No biasing required

Answer Key: B

Question No. 16

The value of the radix in the binary number system is-

- A) 10
- B) 8
- C) 2
- D) 1

Answer Key: C

Question No. 17

An astable multivibrator is a circuit which generates a-

- A) Sawtooth wave
- B) Triangular wave
- C) Sine wave
- D) Square wave

Answer Key: D

Question No. 18

Which types of cells are used for building the laptop battery pack?

- A) Lead acid
- B) Zinc silver oxide
- C) Lithium ion
- D) Alkaline

Answer Key: C

Question No. 19

Which of the following is NOT a point-and-draw device?

- A) Touchscreen
- B) Mouse
- C) Keypad
- D) Trackball

Answer Key: C

Question No. 20

The \_\_\_\_\_ is the physical path over which a message travels in computer networks.

- A) Medium
- B) Route

C) Protocol

D) Path

Answer Key: A

#### Question No. 21

The average value of a sinusoidal voltage or current waveform taken over a complete cycle is-

A) 0

B) 1.1111

C) 1.4141

D) 0.7071

Answer Key: A

#### Question No. 22

Which types of batteries are used in television remote controls?

A) Lead acid

B) Nickel hydrogen

C) Lithium ion

D) Alkaline

Answer Key: D

#### Question No. 23

Which of the following can be measured by the Cathode Ray Oscilloscope (CRO)?

A) Power

B) Voltage

C) Energy

D) Weight

Answer Key: B

#### Question No. 24

What is the value of the resistor in a circuit with voltage of 100 V and a current of 10 A?

A) 20  $\Omega$

B) 10  $\Omega$

C) 50  $\Omega$

D) 5  $\Omega$

Answer Key: B

#### Question No. 25

The resistance of a VARISTOR varies with-

A) Temperature

B) Current

C) Voltage

D) Both with temperature and voltage

Answer Key: C

#### Question No. 26

Resistance is measured using a \_\_\_\_\_ in a digital multimeter.

A) Variable voltage source

B) Variable current source

C) Constant voltage source

D) Constant current source

Answer Key: D

#### Question No. 27

A manually operating device used for opening and closing or for changing the connections of a circuit is called a-

- A) Holder
- C) Relay

- B) Switch
- D) Fuse

Answer Key: B

#### Question No. 28

What is the current drawn by the electric iron of 600 W working on 110 V supply?

- A) 5.5 A
- C) 5.8 A
- B) 4.6 A
- D) 5 A

Answer Key: A

#### Question No. 29

What is the equivalent capacitance of N capacitors of capacitance C each connected in series?

- A) CN
- C)  $C^3N$
- B)  $C / N$
- D)  $CN^2$

Answer Key: B

#### Question No. 30

What is the ripple factor of a half-wave rectifier?

- A) 1.21
- C) 0.36
- B) 0.48
- D) 0.78

Answer Key: A

#### Question No. 31

MS PowerPoint is an example of a/an-

- A) Operating system
- C) Application software
- B) System software
- D) Compiler

Answer Key: C

#### Question No. 32

A network \_\_\_\_\_ is an established set of rules that determine how data is transmitted between different devices in the same network.

- A) Medium
- C) Protocol
- B) Route
- D) Path

Answer Key: C

#### Question No. 33

How many 16 bit registers are there in an 8051 microcontroller?

- A) 1
- C) 3
- B) 2
- D) 4

Answer Key: B

#### Question No. 34

Which of the following is a valid BCD code?

- A) 1011
- B) 1100
- C) 1000
- D) 1101

Answer Key: C

#### Question No. 35

Which of the following is the main application of the operational amplifier comparator circuit?

- A) Differentiator
- B) Zero crossing detector
- C) Integrator
- D) Summing amplifier

Answer Key: B

#### Question No. 36

Which of the following numbers is marked on a 5.60  $\Omega$  SMD resistor?

- A) 561R
- B) 560R
- C) 5R60
- D) 56R0

Answer Key: C

#### Question No. 37

Which of the following numbers is marked on a 30.9  $\Omega$  SMD resistor?

- A) 309R
- B) R309
- C) 3R09
- D) 30R9

Answer Key: D

#### Question No. 38

\_\_\_\_\_ is related to the manufacture of optical fiber cables similar to how material composition and fabrication process are related.

- A) Absorption loss
- B) Dispersion loss
- C) Coupling loss
- D) Radiation loss

Answer Key: A

#### Question No. 39

Which of the protection methods are employed in the fiber optic cables to isolate the fiber from external forces?

- A) PVC cable duct
- B) Loose tube
- C) Tight buffer
- D) Both loose tube and tight buffer

Answer Key: D

#### Question No. 40

\_\_\_\_\_ are voltage measuring devices which can be used to measure current using a shunt resistor or Hall effect current sensor.

- A) LEDs
- B) Digital panel meters

C) LCDs

D) OLEDs

Answer Key: B

#### Question No. 41

\_\_\_\_\_ is an electrical appliance which is designed to deliver a constant voltage to a load at its output terminals regardless of the changes in the input or incoming supply voltage.

A) Amplifier

B) Rectifier

C) Voltage stabilizer

D) Oscillator

Answer Key: C

#### Question No. 42

What is the rating of a 12 V battery for an inverter for running a load of 500 W for 3 hours?

A) 1500 Ah

B) 167 Ah

C) 150 Ah

D) 100 Ah

Answer Key: C

#### Question No. 43

\_\_\_\_\_ is the ratio of working power, measured in kilowatts (kW) to apparent power, measured in kilovolt amperes (kVA) in the load of the UPS system.

A) Regulation

B) Load crest factor

C) Load power factor

D) Power rating

Answer Key: C

#### Question No. 44

The UPS battery \_\_\_\_\_ specifies the type of batteries used in the UPS.

A) Make

B) Brand

C) Type

D) Colour

Answer Key: C

#### Question No. 45

For UPS with two LEDs, when the main power fails, the green LED is "OFF", and the other \_\_\_\_\_ LED comes "ON" indicating that the UPS is working with back-up power.

A) Blue

B) Green

C) Yellow

D) Amber

Answer Key: D

#### Question No. 46

Which of the following is a non-renewable source of energy?

A) Solar

B) Coal

C) Tidal

D) Geothermal

Answer Key: B

#### Question No. 47

\_\_\_\_\_ cell is a device that is made up of semiconductor materials that converts sunlight directly into electricity.

- A) Alkaline
- B) Button
- C) Dry
- D) Solar

Answer Key: D

#### Question No. 48

Which of the following laws states that the algebraic sum of currents meeting at a junction point is always zero?

- A) Kirchhoff's current law
- B) Kirchhoff's voltage law
- C) Lenz's law
- D) Faraday law

Answer Key: A

#### Question No. 49

The operational amplifier has pins for-

- A) Negative and positive supply
- B) Inverting and non inverting input
- C) Output
- D) All of the options

Answer Key: D

#### Question No. 50

What is the value of the resistor with a colour code of Green, Blue, Red, Silver?

- A) 5.6 k $\Omega$  with 10% tolerance
- B) 56 k $\Omega$  with 10% tolerance
- C) 5.6 k $\Omega$  with 5% tolerance
- D) 56 k $\Omega$  with 5% tolerance

Answer Key: A

#### Question No. 51

For which of the following can combination pliers be used?

- A) Cutting and gripping
- B) Forming curves in wires
- C) Removing nails from wood
- D) Shaping wires

Answer Key: A

#### Question No. 52

A semiconductor in its pure form is referred to as a/an-

- A) Intrinsic semiconductor
- B) Extrinsic semiconductor
- C) Crystalline semiconductor
- D) Doped semiconductor

Answer Key: A

#### Question No. 53

The output voltage of the 78M05 IC is-

- A) 15 V
- B) -15 V
- C) 5 V
- D) -5 V



Answer Key: C

Question No. 54

What is the resistance of a resistor with the colour code brown-black-black-silver?

- A) 1 ohm  $\pm$  10%
- B) 10 ohms  $\pm$  10%
- C) 10 ohms  $\pm$  20%
- D) 100 ohms  $\pm$  10%

Answer Key: B

Question No. 55

Find the equivalent resistance, when two resistors of values 20 k $\Omega$  and 10 k $\Omega$  are connected in series.

- A) 5 k $\Omega$
- B) 10 k $\Omega$
- C) 30 k $\Omega$
- D) 35 k $\Omega$

Answer Key: C

Question No. 56

The term PCB stands for-

- A) Polythene Card Board
- B) Polystenine Circuit Board
- C) Printed Circuit Board
- D) Practical Circuit Board

Answer Key: C

Question No. 57

The property of an inductor is to-

- A) Accumulate electric charge
- B) Stop current from passing through it
- C) Oppose sudden changes in current
- D) Allow AC but block DC

Answer Key: C

Question No. 58

A nibble is equal to \_\_\_\_ bit(s).

- A) 1
- B) 2
- C) 4
- D) 8

Answer Key: C

Question No. 59

Batteries in general can be classified into two categories, namely-

- A) Button and lithium cells
- B) Dry and alkaline cells
- C) Primary and secondary cells
- D) Cylindrical and rectangular cells

Answer Key: C

Question No. 60

The overall voltage gain of a 'Darlington pair' is-

- A) Very high
- B) Moderate

C) Very low

D) Close to unity

Answer Key: D

#### Question No. 61

Which is the most commonly used electrical conductor?

A) Brass

B) Copper

C) Lead

D) Tin

Answer Key: B

#### Question No. 62

Which is the correct equation for the power dissipated by a resistor?

A)  $P = I^2 \times R$

B)  $P = I \times R$

C)  $P = V \times I^2$

D)  $P = I \times R^2$

Answer Key: A

#### Question No. 63

Magnetic lines flow from the \_\_\_\_\_ to the \_\_\_\_\_.

A) North pole, south pole

B) South pole, north pole

C) North pole, free space

D) Free space, south pole

Answer Key: A

#### Question No. 64

A trimmer capacitor is used in-

A) RF circuits

B) Filters

C) Tuners

D) All of the options

Answer Key: D

#### Question No. 65

Which is the output pin number in IC 7905?

A) 1

B) 2

C) 3

D) None of the options

Answer Key: C

#### Question No. 66

What is the value of capacitance of a capacitor which has a voltage of 4 V and has 16 C of charge?

A) 2 F

B) 4 F

C) 6 F

D) 8 F

Answer Key: B

#### Question No. 67

What is the percentage of tolerance on resistors with a gold tolerance band?

A) 1%

B) 2%

C) 10%

D) 5%

Answer Key: D

#### Question No. 68

Which of the following is decreased in the secondary of a step-up transformer?

A) Power

B) Frequency

C) Voltage

D) Current

Answer Key: D

#### Question No. 69

Which pin of the IC 741 operational amplifier is NEVER used?

A) Pin 6

B) Pin 8

C) Pin 3

D) Pin 1

Answer Key: B

#### Question No. 70

The op-amp can be considered to be a \_\_\_\_\_ amplifying device.

A) Voltage

B) Current

C) Resistance

D) Power

Answer Key: A

#### Question No. 71

Which of the following does the block diagram of a digital storage oscilloscope consist of?

A) Amplifier

B) Digitizer

C) Memory

D) All of the options

Answer Key: D

#### Question No. 72

Which of the following electronic devices is used as a switching device in an SMPS?

A) Power MOSFET

B) Power diode

C) UJT

D) Varistor

Answer Key: A

#### Question No. 73

A/an \_\_\_\_\_ protection system continually monitors the battery voltage, then disconnects the load when a low voltage is sensed.

A) No-load

B) Overload

C) Low-voltage

D) Over-voltage

Answer Key: C

Question No. 74

A/an \_\_\_\_\_ is a power electronics device that accepts a DC input voltage and provides a DC output voltage.

- A) DC-to-DC converter
- B) AC-to-DC converter
- C) AC-to-AC converter
- D) DC-to-AC converter

Answer Key: A

Question No. 75

The \_\_\_\_\_ refers to the temperature at which the device can be safely stored when the electronic device is NOT powered.

- A) Operating temperature
- B) Average temperature
- C) Ambient temperature
- D) Storage temperature

Answer Key: D