श्री चित्रातिरुनालआयुर्विज्ञानऔरप्रौद्योगिकीसंस्थान, त्रिवेंद्रम, केरल– 695 011
(एकराष्ट्रीयमहत्वकासंस्थान, विज्ञानएवंप्रौद्योगिकीविभाग, भारतसरकार)
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY,TRIVANDRUM
KERALA – 695 011
(An Institution of National Importance, Department of Science and Technology, Govt. of India)
टेलीफॉन नं . Telephone No. 0471- 2443152 –फाक्स /Fax- 2550728 , 0471- 2446433
ई–मेल/E-mail :sct@sctimst.ac.in वेबसाइट/ Website : www.sctimst.ac.in

ENTRANCE EXAMINATION - ACADEMIC SESSION JANUARY 2024

Program: Diploma in Operation Theatre and Anaesthesia Technology

Time:90 Minutes

Max.Marks: 100

(Select the most appropriate answer)
(There are **no negative** marks for wrong answers)

1	At room temperature the free electrons in a metal cannot leave the surface of the metal to provide electron emission because of	
	a	Surface tension
	b	Hardness
	c	Pull back by the nuclei
	d	less concentration
2	The process of electron emission from a metal surface by supplying thermal energy to it is known as.....	
	a	Thermionic emission
	b	Field emission
	c	Secondary emission
	d	Photo-electric emission
3	Substances which do not allow the passage of electric current through them is called	
	a	Conductors
	b	Semiconductors
	c	Insulators
	d	Isolators
4	When a small amount of impurity is added to a pure semiconductor it becomes	
	a	Impure semiconductor
	b	Non semiconductor
	c	Intrinsic semiconductor,
	d	Extrinsic semiconductor
5	When a small amount of pentavalent impurity is added to a pure semiconductor, it is known as	
	a	n-type semiconductor
	b	p-type semiconductor
	c	pn-type semiconductor
	d	np-type semiconductor

6	Comparing vacuum tubes semiconductor is having	
	a	Low voltage gain
	b	High voltage gain
	c	High expense
	d	High heat generation
7	The two layers of positive and negative charges forms in a pn junction is called	
	a	Avalanche region
	b	zener region
	c	Depletion region.
	d	Conduction region
8	The process in which the electrons move across the barrier from the valence band of p-type material to the conduction band of n-type material is known as	
	a	Avalanche breakdown
	b	Zener breakdown
	c	Diode breakdown
	d	Depletion breakdown
9	When a diode is connected as, a negative voltage is applied to the N-type material and a positive voltage is applied to the P-type material is called	
	a	Forward Biascondition
	b	ReverseBias condition
	c	saturationcondition
	d	Breakdown condition
10	The forward voltage at which the depletion region vanishes and the current in diode raises rapidly is called	
	a	Breakdown voltage
	b	Conduction voltage
	c	Knee voltage
	d	Skew voltage
11	Zener diode is mostly used in ..... condition only	
	a	Forward bias
	b	Reverse bias
	c	Saturation
	d	Breakdown
12	A light-emitting diode (LED) will emit visible or invisible light when it is	
	a	Forward bias
	b	Reverse bias
	c	Saturation
	d	Breakdown
13	An electrical device that converts an Alternating Current (AC) into a Direct Current (DC).....	
	a	Converter
	b	Filter
	c	Amplifier
	d	Rectifier
14	A filter circuitis a device which removes the ..... of rectifier output	
	a	High voltage component
	b	Low voltage component
	c	a.c. component
	d	d.c. component

15	A transistor has ….. of pn junction	
	a	1
	b	2
	c	3
	d	4
16	Which is connected to ground in a common base configuration	
	a	Emitter
	b	Base
	c	Collector
	d	Emitter and Collector
17	Current amplification factorin common base (CB) arrangement (α) is equal to ……	
	a	**$\Delta IC/\Delta IE$**
	b	**$\Delta IB/\Delta IE$**
	c	**$\Delta IC/\Delta IB$**
	d	**$\Delta IE/\Delta IB$**
18	The application of external dc supply to establish a fixed level of current and voltage in a Transistor is called …..	
	a	Power up
	b	Stimulating
	c	Simulating
	d	Biasing
19	A transistor become ON when the input voltage exceeds…	
	a	Saturation voltage
	b	Cut in voltage
	c	Active voltage
	d	Bias voltage
20	A circuit which produces a continuous, repeated, alternating waveform without any input is called …….	
	a	Amplifier
	b	Rectifier
	c	Regulator
	d	Oscillator
21	The process by which some characteristics or parameters of the carrier wave is changed according to the signal containing information is called …..	
	a	Amplification
	b	Communication
	c	Modulation
	d	Oscillation
22	A device that changes the physical attributes of the non-electrical signal into an electrical signal is called……	
	a	Resistor
	b	Capacitor
	c	Transistor
	d	Transducer
23	Based on the power type Transducers can be classified as …..	
	a	Active transducer or Passive transducer
	b	Primary transducer or Secondary transducer
	c	Analog transducer or Digital transducer
	d	Positive transducer or Negative transducer

24	The transducer which does not require the external power source is known as	
	a	Active
	b	Passive
	c	Resistive
	d	Capacitive
25	The photovoltaic cell is the type of..... transducer	
	a	Active
	b	Passive
	c	Resistive
	d	Capacitive
26	An electronic measuring instrument that combines several measurement functions in one unit is called	
	a	Ammeter
	b	Voltmeter
	c	Millimeter
	d	Multimeter
27	An electronic equipment, which used to displays a time varying signal or waveform is called	
	a	kaleidoscope
	b	Octoscope
	c	oscilloscope
	d	Periscope
28	An atom of an element is generally made up of electrons, protons, and neutrons. Which is an exception	
	a	Hydrogen
	b	Helium
	c	Lithium
	d	Beryllium
29	The current in a circuit is directly proportional to the applied voltage and inversely proportional to the amount of resistance is	
	a	Ampere's's law
	b	Ohms law
	c	Kirchhoff's
	d	coulombs law
30	The Piezo electrical crystal is the example of the ..... transducer	
	a	Active
	b	Passive
	c	Resistive
	d	Capacitive
31	In Frequency modulation (FM) the ..... of the carrier varies in proportion to the message or data signal while maintaining other parameters constant	
	a	Amplitude
	b	Frequency
	c	Phase
	d	Current
32	Which of the following instruments indicate the instantaneous value of the electrical quantity being measured at the time at which it is being measured ?	
	a	absolute instrument
	b	Indicating instruments
	c	Recording instruments
	d	Integrating instruments

33	An ammeter is a	
	a	Absolute instrument
	b	Recording instrument
	c	Integrating instrument
	d	Secondary instrument
34	When a capacitor was connected to the terminal of ohmmeter, the pointer indicated a low resistance initially and then slowly came to infinity position. This shows that capacitor is	
	a	Short-circuited
	b	Faulty
	c	All right
	d	Leaky
35	Basically a potentiometer is a device for	
	a	Comparing two voltages
	b	Comparing two current
	c	Measuring a current
	d	Measuring a Capacitance
36	Which of the following is used in tomography	
	a	Gamma ray
	b	Ultrasound
	c	X ray
	d	UV ray
37	Which one of the following is not a transducer?	
	a	Thermocouple
	b	Photovoltaic
	c	Moving coil generator
	d	Resistor
38	Which of the following is not a resistive passive transducer ?	
	a	Strain gauge
	b	Potentiometer
	c	LVDT
	d	Temperature sensors
39	The electrical activity of heart is called	
	a	Electroretinogram (ERG)
	b	Electrocardiogram (ECG)
	c	Electroencephalogram (EEG)
	d	Electrooculogram (EOG)
40	Which of the following methods is not used for blood pressure measurement	
	a	Sphygmomanometer
	b	Percutaneous method
	c	Catheterization
	d	Blood chemical analysis
41	Which of the following property of ultrasound waves cannot be applied in medical imaging	
	a	They are longitudinal
	b	They are electromagnetic
	c	They are acoustic
	d	They depend upon the medium through which it propagates
42	A quartz crystal transducer is a type of ----------	
	a	A chemical transducer
	b	A photovoltaic transducer
	c	A self generating transducer
	d	A capacitive transducer

43	Which of the following represents an active transducer?	
	a	Thermistor
	b	Strain Gauge
	c	Thermocouple
	d	LVDT
44	_____ thermometer cannot measure sub-zero (<0° C) temperature	
	a	Bimetallic
	b	Mercury in glass
	c	Vapor pressure
	d	Resistive
45	Bourdon tube is never made of	
	a	Stainless steel
	b	Cast iron
	c	Monel steel
	d	Phosphor bronze
46	emf generated by thermocouples is of the order of	
	a	Milli volt
	b	Volt
	c	Kilo volt
	d	Micro volt
47	Load cells are used for the measurement of	
	a	Stress
	b	Strain
	c	Weight
	d	Velocity
48	The filter used to reject the 50Hz noise picked up from power lines or machinery is called?	
	a	Low pass filter
	b	High pass filter
	c	Band pass filter
	d	Notch filter
49	Buffer amplifier converts _____	
	a	High impedance signals to low impedance signals
	b	Low impedance signals to high impedance signals
	c	ac impedance signals to dc impedance signals
	d	dc impedance signals to ac impedance signals
50	The ability of the sensor to see small differences in reading is called _____	
	a	Linearity
	b	Drift
	c	Offset
	d	Resolution
51	Change in signal over long period of time is called _____	
	a	Linearity
	b	Drift
	c	Offset
	d	Resolution
52	The minimum input of physical parameter that will create a detectable out change is called	
	a	Precision
	b	Span
	c	Sensitivity
	d	Threshold

53	Photo-diodes work in _____	
	a	Forward biased
	b	Reverse biased
	c	Independent of forward and reverse biasing
	d	In forward and reverse biasing
54	The ability of the amplifier to reject common voltages on its two input leads is known as _____	
	a	common mode rejection rate
	b	coupled mode rejection rate
	c	common mode rejection ratio
	d	coupled mode rejection ratio
55	The insulating layer between capacitors plates is commonly called	
	a	Dielectric
	b	Spacer
	c	Separator
	d	Base
56	What is the resistance value of a resistor with the colour band Green, Blue. Brown, Gold	
	a	650 +/- 5%
	b	560+/- 5%
	c	650+/-10%
	d	560+/-10%
57	What is the total value of resistance when three 10 ohms resistance connected in series	
	a	0.1 Ohms
	b	0.3 Ohms
	c	10 Ohms
	d	30 Ohms
58	What is the total value of resistance when three 0.1uF capacitor connected in parallel	
	a	0.1uF
	b	0.3uF
	c	1uF
	d	3uF
59	When an electrical current flows through a wire conductor, the relation between the magnetic field and its direction is explained by	
	a	Fleming's Right Hand Rule.
	b	Fleming's Left Hand Rule.
	c	Coulomb's Right Hand Rule.
	d	Coulomb's Left Hand Rule.
60	An electric battery is a device consisting of two or more electrochemical that converts	
	a	Chemical energy into electrical energy.
	b	Chemical energy into light energy.
	c	Electrical energy into chemical energy
	d	Electrical energy to light energy
61	Rechargeable Batteries are commonly known as	
	a	Primary battery
	b	Secondary battery
	c	Stand by battery
	d	Disposable battery

62	The range of energies possessed by electrons of the same orbit in a solid is known as	
	a	Conduction Band
	b	Valence Band
	c	Energy band
	d	Forbidden band
63	The process by which an impurity is added to a semiconductor is known as	
	a	Mixing
	b	Caping
	c	Cropping
	d	Doping
64	For forward biasing a pn junction	
	a	Positive terminal of a battery is to be connected to p type and n type material
	b	Negative terminal of a battery is to be connected to p type and n type material
	c	Positive terminal of a battery is to be connected to p type material and negative terminal to n type material
	d	Negative terminal of a battery is connected to p type material and positive to n type material.
65	A LED (Light Emitting Diode) will glow when.....	
	a	It is forward biased
	b	It is reverse biased
	c	Light made fall on it
	d	Heated its pn junction
66	For a full wave bridge rectifier minimum number of diode required is	
	a	1
	b	2
	c	3
	d	4
67	If an elephant runs for half an hour at a speed of 4km/hr. What distance does it cover?	
	a	1km
	b	2km
	c	3km
	d	4km
68	The change in speed for a period is called	
	a	Acceleration
	b	Velocity
	c	Motion
	d	Displacement
69	In the following, which is a scalar quantity ?	
	a	Acceleration
	b	Velocity
	c	Speed
	d	Displacement
70	Property of matter by which it remains at the state of rest or in uniform motion in the same straight line unless acted upon by some external force is called	
	a	Acceleration
	b	Velocity
	c	Displacement
	d	Inertia

71	According to Newton's second law the relation between Force, mass and acceleration is	
	a	$F = ma$
	b	$F = ½ ma^2$
	c	$F = m/a$
	d	$F = 2ma$
72	The simplest type of chemical substance; it cannot be broken down into simpler chemical substances by ordinary chemical means is called	
	a	Matter
	b	Substance
	c	Element
	d	compound
73	Positively charged ions are called	
	a	anions
	b	Cations
	c	atoms
	d	Molecules
74	What is the molecular compound formula for water	
	a	HO
	b	HO_2
	c	H_2O
	d	H_2O_2
75	Matter which has neither a definite volume nor a definite shape is called	
	a	Solid
	b	Liquid
	c	Gasses
	d	Compound
76	The charge Q in a capacitor with C capacitance applied with a voltage V is equal to	
	a	$Q = ½ CV$
	b	$Q = ½ CV^2$
	c	$Q = CV^2$
	d	$Q = CV$
77	In the SI system unit of Inductance is	
	a	Ohm
	b	Farad
	c	Henry
	d	Lux
78	For an NPN transistor, the base will be	
	a	P type
	b	N type
	c	PN junction
	d	NP junction
79	To operate a transistor in an active region, the Collector base junction will be	
	a	Forward biased
	b	Reverse biased
	c	Positive biased
	d	Negative biased

80	In Common Collector Connection (or CC Configuration) the current amplification factor is represented by	
	a	Alpha
	b	Beta
	c	Gama
	d	Delta
81	When a particle is in circular motion, the force experienced towards the center of the circular path is called	
	a	Rotational force
	b	Linear force
	c	Centrifugal force
	d	Centripetal force
82	In Physics, work done is equal to	
	a	Force applied
	b	Displacement obtained
	c	Product of Force and Displacement
	d	Sum of Force and Displacement
83	The ratio of the mass of a substance to the mass of an equal volume of water under the same conditions is called	
	a	Density
	b	Concentration
	c	Gravity
	d	Specific gravity
84	Homogeneous mixture of metallic elements existing in one solid phase is called	
	a	Alloy
	b	compound
	c	solution
	d	Mixture
85	The energy produced from motion is called	
	a	Potential Energy
	b	Kinetic energy
	c	Static energy
	d	Work
86	Atomic mass of Oxygen	
	a	4
	b	8
	c	16
	d	32
87	Thelunar-exploration missions developed by the Indian Space Research Organization which had soft landing in moon is called	
	a	Aditya- L1
	b	Chandrayaan - 1
	c	Chandrayaan - 2
	d	Chandrayaan - 3
88	How many chambers are present in a normal human heart ?	
	a	2
	b	4
	c	6
	d	8

89	The Oxygen and Carbon Dioxide exchange of blood in a human body took place at	
	a	Brain
	b	Heart
	c	Lungs
	d	Kidney
90	Largest organ in the human body is	
	a	Skin
	b	Brain
	c	Heart
	d	Lungs
91	Which is the smallest bone in the human body	
	a	Malleus
	b	Incus
	c	Stapes
	d	Femur
92	In a field effect transistor (FET) current conduction will take place through how many type of carriers	
	a	1
	b	2
	c	3
	d	4
93	In an n- channel FET, the drain will be.....	
	a	P type material
	b	N type material
	c	PN type material
	d	Intrinsic Semiconductor
94	A three terminal semiconductor device which will have insulated gate is	
	a	Bipolar Junction Transistor (BJT)
	b	Field Effect Transistor (FET)
	c	Junction field effect transistors(JFET)
	d	Metal oxide field effect transistor (MOSFET)
95	In an Octal Number System how may radix were used?	
	a	2
	b	4
	c	8
	d	10
96	In 8421 (Binary Coded Decimal)BCD code Decimal number 5 can be represented as	
	a	0101
	b	1001
	c	1011
	d	0011
97	Find the sum when two binary numbers 0101 added with 0011	
	a	0100
	b	0101
	c	0111
	d	1000

98	Logic AND gate works on the principle of	
	a	Binary Addition
	b	Binary Subtraction
	c	Binary Multiplication
	d	Binary Division
99	Which is the following is an Universal gate in Digital Electronics	
	a	OR gate
	b	AND gate
	c	NOT gate
	d	NAND gate
.100	What is Fan in in logic gates	
	a	Minimum number of input signals that feed the input equations of a logic cell
	b	Maximum number of input signals that feed the input equations of a logic cell
	c	Minimum number of output signals that feed the input equations of a logic cell
	d	Maximum number of output signals that feed the input equations of a logic cell

Answer Key

Program: Diploma in Operation Theatre and Anaesthesia Technology 2024

Question No.	Correct answer	Question No.	Correct answer	Question No.	Correct answer
1.	c	38.	c	75.	c
2.	a	39.	b	76.	d
3.	c	40.	d	77.	c
4.	d	41.	b	78.	a
5.	a	42.	c	79.	b
6.	b	43.	c	80.	c
7.	c	44.	a	81.	d
8.	b	45.	b	82.	c
9.	a	46.	a	83.	d
10.	c	47.	c	84.	a
11.	b	48.	d	85.	b
12.	a	49.	a	86.	c
13.	d	50.	d	87.	d
14.	c	51.	b	88.	b
15.	b	52.	c	89.	c
16.	b	53.	b	90.	a
17.	a	54.	c	91.	c
18.	d	55.	a	92.	a
19.	b	56.	b	93.	b
20.	d	57.	d	94.	d
21.	c	58.	b	95.	c
22.	d	59.	a	96.	a
23.	a	60.	a	97.	d
24.	a	61.	b	98.	c
25.	a	62.	c	99.	d
26.	d	63.	d	100.	b
27.	c	64.	c		
28.	a	65.	a		
29.	b	66.	d		
30.	a	67.	b		
31.	b	68.	a		
32.	b	69.	c		
33.	d	70.	d		
34.	c	71.	a		
35.	a	72.	c		
36.	c	73.	b		
37.	d	74.	c		