श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकीसंस्थान, तिरुवनंतपुरम्-11
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
THIRUVANANTHAPURAM—695 011

ENTRANCE EXAMINATION - ACADEMIC SESSION JANUARY 2022

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   Official name of CORONA Virus?

   a. Middle East Respiratory   c. Corona - V2
      Syndrome   d. SARS-CoV-2
   b. MERS-CoV-2

2   Current Minister of Health and Family Welfare in India?

   a. Mansukh L. Mandaviya   c. Harsh Vardhan
   b. Jagat Prakash Nadda   d. Shatrughan Sinha

3   He got too tired _____ over work.

   a. because of   c. on
   b. based on   d. to the

4   I speak English but he_____.

   a. didn't speaks   c. speaks
   b. doesn't speak   d. don't speak

5   I haven't seen you_____ 2009.

   a. for   c. from
   b. till   d. since

6   The surface considered for Gauss's law is called
   a. Closed surface   c. Gaussian surface
   b. Spherical surface   d. Plane surface

7   Dielectric constant for a metal is

   a. zero   c. 1
   b. infinite   d. 10

8   In parallel combination of n cells, we obtain

    a. more voltage   c. less voltage
    b. more current   d. less current

9   Faraday's laws are consequence of the conservation of

    a. charge   c. magnetic field
    b. energy   d. bonding

10   A transformer works on the principle of

    a. self induction   c. mutual induction
    b. electrical inertia   d. magnetic effect of the
                                       electrical current

11   Which of the following colours of white light deviates most when passed through a prism?

    a. Red light   c. Yellow light
    b. Violet light   d. Green light

12   In a semiconductor, the forbidden energy gap between the valence band and the conduction band is of the order of:

    a. 1 Mev   c. 0.1 Mev
    b. 1 ev   d. 5ev

13   In principle, Boolean algerbra is based on:

    a. simple numbers   c. logic
    b. binary numbers   d. truth

14   If a matrix has 6 elements, then number of possible orders of the matrix can be

    a. 2   c. 3
    b. 4   d. 6

15   The length of tangents drawn from an external point to the circle

    a. are equal   c. sometimes are equal
    b. are not equal   d. are not defined

16   A line through point of contact and passing through centre of circle is known as

    a. tangent   c. normal
    b. chord   d. segment

17   Who provides valuable information about a wide range of cardiac disorders?

    a. VCG   c. EEG
    b. ECG   d. PCG

18   Active transducers work on the principle of _____

    a. energy conversion   c. energy alteration
    b. mass conversion   d. volume conversion

19 Electroencephalogram is obtained from bioelectrical signals from the?

a. Brain
b. Heart
c. Muscles
d. Retina

20 What does "MRI" stand for?

a. Magneto-Ray Idometry
b. Medical Radiometry Instrument
c. Magnetic Resonance Imaging
d. Maximal Radiology Imaging

21 Best source of Vitamin D is _____

a. Poultry
b. Dairy products
c. Cycling
d. Sunlight

22 How many chambers does the heart have?

a. 6
b. 4
c. 5
d. 3

23 Heart of heart is _____

a. SA Node
b. AV Node
c. HIS
d. Purkinje fibers

24 Longest Bone in human body_____

a. Stapes
b. Femur
c. Tibia
d. Fibula

25 What wall separates the left side and right side of the heart?

a. Ventricle
b. Atrium
c. Septum
d. Epicardium

26 What organ removes waste from blood?

a. Heart
b. Lungs
c. Kidneys
d. liver

27 Which among the following diseases is not caused by a virus ?

a. Chickenpox
b. Hepatitis
c. Dengue
d. Cholera

28 Signals generated by body signal is known as _____

a. Ionic voltage
b. Monitory signal
c. Magnetic signal
d. Electric signal

29 What is the unit of strain gage?

a. Ω/oC
b. Lux
c. Newton / meter2
d. Volts

30 Higher input voltage can be measured in low voltage DC voltmeter using

a. Smaller resistance value
b. Higher resistance value
c. Random resistance value
d. Equivalent resistance value

31 Which cell can be used instead of a photocell to obtain active transducer in photosensitive devices?

    a. Photovoltaic cell   c. Photo sensor
    b. Photo diode   d. Photo transistor

32 An oscilloscope indicates

    a. Peak to peak value of   c. RMS value
      voltage   d. Average value
    b. DC value of voltage

33 The resistance can be measured most accurately by

    a. Voltmeter-ammeter   c. Multimeter
      method   d. Megger
    b. Bridge method

34 The repeat accuracy of an instrument can be judged from its

    a. static error   c. dynamic error
    b. linearity error   d. standard deviation of error

35 Number of electrons in the valence shell of a semiconductor is:

    a. 1   c. 3
    b. 2   d. 4

36 Semiconductors of both p-type and n-type are produced by:

    a. ionic solids   c. metallic solids
    b. covalent solids   d. molecular solids

37 In a p-type semiconductor, current conduction is by:

    a. atoms   c. electrons
    b. holes   d. protons

38 In reverse biasing:

    a. large amount of current   c. potential barrier across
      flows   junction increases
    b. no current flows   d. depletion layer resistance
                         increases

39 Main function of a transistor is to :

    a. rectify   c. amplify
    b. simplify   d. filter

40 To obtain p-type silicon semiconductor, we need to dope pure silicon with:

    a. aluminium   c. oxygen
    b. phosphorus   d. germanium

41 In semi conductor which are responsible for conduction:

    a. only electrons   c. only holes
    b. electron and hole both   d. protons

42   In binary system '111' represents:

      a. 10
      b. 3

      c. 7
      d. 100

43   On heating, resistance of semiconductors:

      a. decreases
      b. increases

      c. remains same
      d. first increases then decreases

44   p-n junction diode can be used as:

      a. detector
      b. amplifier

      c. oscillator
      d. modulator

45   In intrinsic semiconductor at room temperature, the number of electrons and holes are:

      a. equal
      b. unequal

      c. infinite
      d. zero

46   Crystal diode is:

      a. fluctuating device
      b. non-linear device

      c. linear device
      d. amplifying device

47   The part of a transistor which is heavily doped to produce a large number of majority carriers is :

      a. base
      b. emitter

      c. collector
      d. gate

48   Which of the following samples the analog signals to obtain their digital equivalent?

      a. Analog to digital converter
      b. Electronic counter

      c. Comparator
      d. Digital to analog converter

49   Which of the following can be used to store information?

      a. Gates
      b. ADC

      c. DAC
      d. Flip-flops

50   Which of the following is the binary equivalent of the decimal number 10?

      a. 1100
      b. 10

      c. 1011
      d. 1010

51   Two switches are in parallel and are connected with a lamp and supply in series. This represents which of the following logic gate?

      a. AND gate
      b. OR gate

      c. EX-OR gate
      d. NOT gate

52   A transistor has how many pn junctions?

      a. 1
      b. 2

      c. 3
      d. 4

53   In an npn transistor, the majority carriers in the emitter are

      a. free electrons
      b. holes

      c. neutrons
      d. photons

54   CRT act as converter of _____

      a. Voltage to displacement
      b. Voltage to voltage converter
      c. Current to displacement
      d. Displacement to voltage

55   The barrier potential across each silicon depletion layer is

      a. 0V
      b. 0.3V
      c. 0.7V
      d. 1V

56   The base of an npn transistor is thin and

      a. Heavily doped
      b. Lightly doped
      c. Metallic
      d. Doped by a pentavalent Material

57   When a transistor is fully switched ON, it is said to be

      a. shorted
      b. saturated
      c. open
      d. cut-off

58   Junction Field Effect Transistors (JFET) contain how many diodes?

      a. 4
      b. 3
      c. 2
      d. 1

59   Which of the following devices has the highest input resistance?

      a. diode
      b. JFET
      c. MOSFET
      d. Bipolar junction Transistor

60   A common-gate amplifier is similar in configuration to which BJT Amplifier?

      a. common-emitter
      b. Common-collector
      c. Common-base
      d. Emitter-follower

61   When transistors are used in digital circuits they usually operate in the

      a. Active region
      b. Saturation and cutoff regions
      c. Breakdown Region
      d. Linear region

62   The BJT is a _____ device. The FET is a _____ device.

      a. Bipolar, bipolar
      b. Bipolar,unipolar
      c. Unipolar,bipolar
      d. Unipolar,unipolar

63   In a common-base amplifier, the input signal is connected to the

      a. base.
      b. collector.
      c. emitter.
      d. output.

64   For highest power gain, what configuration is used?

      a. CC
      b. CB
      c. CE
      d. CS

65   The capacitors are considered _____ in the ac equivalent circuit of a transistor amplifier.

      a. Open
      b. Partially open
      c. Short
      d. Partially short

66 In a common emitter amplifier, the capacitor from emitter to ground is called the

   a. Coupling capacitor   c. Decoupling Capacitor
   b. Bypass Capacitor   d. Tuning Capacitor

67 Class C amplifiers are used as

   a. AF amplifiers   c. RF amplifiers
   b. Small signal Amplifiers   d. IF amplifiers

68 The push-pull circuit must use _____ operation.

   a. Class A   c. Class C
   b. Class B   d. Class AB

69 Negative feedback in an amplifier

   a. Reduces gain   c. Reduces Bandwidth
   b. Increase frequency &   d. Increases noise
      phase Distortion

70 The decibel is a measure of

   a. power   c. current
   b. voltage   d. sound level

71 Kirchhoff's Voltage Law states that the total voltage around a closed loop must be

   a. 0   c. 1
   b. ½   d. 1

72 The algebraic sum of _____ in a network of conductors meeting at a point is zero.

   a. Voltages   c. Resistances
   b. currents   d. Inductances

73 The _____ theorem is a way to determine the currents and voltages present in a circuit that has multiple sources.

   a. Norton   c. Thevenin
   b. Super position   d. Maximum power Transfer

74 Kirchhoff's current law is applicable to only

   a. junction in a Network   c. electric circuits
   b. closed loops in a   d. electronic circuits
      Network

75 Which of the following is non-linear circuit parameter?

   a. Inductance   c. wire wound resistor
   b. condenser   d. transistor

76 According to Kirchhoffs voltage law, the algebraic sum of all Voltage drops and e.m.fs. in any closed loop of a network is always

   a. negative   c. determined by battery e.m.fs.
   b. positive   d. zero

77 To determine the polarity of the voltage drop across a resistor, it is necessary to know
   a. value of current through the resistor
   b. direction of current through the resistor
   c. value of resistor
   d. e.m.fs. in the Circuit

78 A terminal where three on more branches meet is known as
   a. node
   b. terminus
   c. anode
   d. cathode

79 A closed path made by several branches of the network is known as
   a. branch
   b. loop
   c. circuit
   d. junction

80 The other name for bias point is
   a. Quiescent point
   b. Node point
   c. Terminal point
   d. Static point

81 Bridge rectifier is an alternative for
   a. Full wave rectifier
   b. Peak rectifier
   c. Half wave rectifier
   d. Quater wave rectifier

82 Zener diodes are also known as
   a. Voltage regulators
   b. Forward bias diode
   c. Breakdown diode
   d. Reverce bias diode

83 Efficiency of a half wave rectifier is
   a. 50.00%
   b. 60.00%
   c. 40.60%
   d. 46.00%

84 The number of terminals in an Op-amp _____
   a. 6
   b. 2
   c. 5
   d. 3

85 The Op-amp is a type of _____
   a. Differential amplifier
   b. Integrated amplifier
   c. Isolation amplifier
   d. Feedback amplifier

86 The opamp in the Inverting circuit is in _____
   a. Linear region
   b. Saturation
   c. Cut-off region
   d. Non-linear region

87 In an Inverting Amplifier circuit, the output voltage vo is expressed as a function of _____
   a. Input current
   b. Output current
   c. Source voltage
   d. Source current

88 The other name for Gain is _____
   a. Scaling factor
   b. Output
   c. Amplifying factor
   d. Scaling level

89 The input applied to an Inverting amplifier is _____
   a. Equal to output
   b. Equal to Inverted output
   c. Not equal to output
   d. Output is equal to input

90 The capacitor doesn't allow sudden changes in _____
   a. Voltage
   b. Current
   c. Resistance
   d. Capacitance

91 The Inductor doesn't allow sudden changes in _____
   a. Inductance
   b. Voltage
   c. Current
   d. Resistance

92 The units for inductance is _____ and capacitance is _____
   a. Faraday, Henry
   b. Coulomb, Faraday
   c. Henry, Faraday
   d. Henry, Coulomb

93 If the voltage across a capacitor is constant, then current passing through it is _____
   a. 1
   b. 0
   c. -1
   d. Infinity

94 An Inductor works as a _____ circuit for DC supply.
   a. Open
   b. Short
   c. Polar
   d. Non-polar

95 The insulating medium between the two plates of capacitor is known as _____
   a. Electrode
   b. Capacitive medium
   c. Conducting medium
   d. Dielectric

96 All _____ are loops but _____ are not meshes
   a. Loops, Meshes
   b. Meshes, loops
   c. Branches, loops
   d. Nodes, Branches

97 The basic laws for analyzing an electric circuit are :-
   a. Einstein's theory
   b. Newtons laws
   c. Kirchhoff's laws
   d. Faradays laws

98 Where current division problem arises
   a. Series connected resistors
   b. Parallel connected resistors
   c. When resistors are equal
   d. Both series and parallel resistors.

99 The Wheatstone Bridge is mainly used to measure _____
   a. Currents
   b. Voltages
   c. Node potentials
   d. Resistances

100 Nodal analysis is mainly based on _____
   a. KCL
   b. KVL
   c. Wheatstone bridge principle
   d. Faraday's electric laws

ANSWER KEY-DOTAT

S.NO.	KEY
1	d
2	a
3	a
4	b
5	d
6	c
7	b
8	b
9	b
10	c
11	b
12	b
13	c
14	d
15	a
16	c
17	b
18	a
19	a
20	c
21	d
22	b
23	a
24	b
25	c
26	c
27	d
28	a
29	c
30	b
31	a
32	a
33	b
34	d
35	d
36	b
37	b
38	c
39	c

40	a
41	b
42	c
43	a
44	a
45	a
46	b
47	b
48	a
49	d
50	d
51	b
52	b
53	a
54	a
55	c
56	b
57	b
58	d
59	c
60	c
61	b
62	b
63	c
64	c
65	c
66	b
67	c
68	b
69	a
70	d
71	a
72	b
73	b

74	a
75	a
76	d
77	b
78	a
79	b
80	a
81	a
82	c
83	c
84	c
85	a
86	a
87	c
88	a
89	b
90	a
91	c
92	c
93	b
94	b
95	d
96	b
97	c
98	b
99	d
100	a