



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

ENTRANCE EXAMINATION - ACADEMIC SESSION JANUARY 2018

PROGRAMME: PG DIPLOMA IN CARDIAC LABORATORY TECHNOLOGY

Time:90 Minutes

Max.Marks: 100

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

1. The number of chambers in human heart is
a) 1 b) 2 c) 3 d) 4
2. The heart sound is recorded by
a) Electrocardiograph b) Endoscope
c) Phonocardiography d) Angiocardiography
3. The Bio-electric generator of heart is situated at
a) Aortic valve b) SA node c) AV node d) Brain
4. A zener diode is destroyed if it.....
a) is forward biased b) is reverse biased
c) carrier more than rated current d) none of the above
5. The active transducer in the measurement of pressure is
a) Piezoelectric transducer b) Capacitive transducer
c) Strain gauge d) Inductive transducer
6. A half-wave rectifier has an input voltage of 240 V r.m.s. If the step-down transformer has a turns ratio of 8:1, what is the peak load voltage? Ignore diode drop.
a) 27.5 V b) 86.5 V c) 30 V d) 42.5 V
7. The Blood is carried away from the heart through
a) Cells. b) Veins c) Arteries d) Nerves.
8. What is displacement?
a) Longest distance covered by a body in a random direction.
b) Shortest distance covered by a body in a random direction.
c) Shortest distance covered by a body in a definite direction.
d) Longest distance covered by a body in a definite direction.
9. A series resistance is connected in the zener circuit to.....
a) properly reverse bias the zener b) protect the zener
c) properly forward bias the zener d) none of the above
10. Ophthalmoscope is an instrument which is used to
a) inspect the eye b) inspect the stomach
c) inspect the thorax d) inspect the abdominal cavity
11. A zener diode is device
a) a non-linear b) a linear c) an amplifying d) none of the above
12. Which instrument is used to measure the power of electric circuit?
a) Voltmeter b) Wattmeter c) Wavemeter d) Viscometer

28. Electromagnets are made of soft iron because soft iron has
 a) high susceptibility and low retentivity
 b) low susceptibility and high retentivity
 c) low susceptibility and low retentivity
 d) high susceptibility and high retentivity
29. When a normal atom loses an electron, the atom
 a) becomes a positive ion
 b) becomes a negative ion
 c) becomes electrically neutral
 d) is the free to move about
30. Which instrument is used to measure heat radiation ?
 a) Radar
 b) Salinometer
 c) Refractometer
 d) Radio micrometer
31. The number of significant digits in 0.02480 is
 a) 3
 b) 4
 c) 5
 d) 6
32. Cardiac output is defined as
 a) Heart rate x stroke volume
 b) Respiration rate x stroke volume
 c) Blood flow rate x stroke volume
 d) Heat rate x blood flow rate
33. A super conducting substance has
 a) positive temperature coefficient
 b) negative temperature coefficient
 c) low resistance
 d) zero resistance
34. When transistors are used in digital circuits they usually operate in the:
 a) linear region
 b) breakdown region
 c) saturation and cutoff regions
 d) active region
35. Nuclear sizes are expressed in a unit named
 a) Fermi
 b) Angstrom
 c) Newton
 d) Tesla
36. Cathode ray consists of
 a) high energy electrons
 b) low energy electrons
 c) high energy protons
 d) low energy protons
37. Name of the instrument to measure atmospheric pressure ?
 a) Barometer
 b) Barograph
 c) Bolometer
 d) Callipers
38. Which of the following has the highest wavelength?
 a) γ - rays
 b) x- rays
 c) UV rays
 d) IR rays
39. An electron has the lowest energy when it is
 a) at infinite distance from the nucleus
 b) in the ground state
 c) in the excited state
 d) remaining stationary
40. Device used to measure potential difference between two points in volts is known as
 a) ohmmeter
 b) odometer
 c) ammeter
 d) voltmeter
41. The modern periodic table is based on
 a) atomic weight
 b) atomic number
 c) atomic size
 d) none of these
42. Which instrument is used to record physical happenings at a distant place ?
 a) Thermostat
 b) Tonometer
 c) Telemeter
 d) Transponder

59. The half life period of a radio isotope is 20min. What fraction of it will remain after one hour?
 a) 75% b) 50% c) 25% d) 12.5%
60. Sensitivity of a thermometer refers to
 a) how quickly thermometer can register change in temperature
 b) amount of change in thermometric property for a unit change in temperature
 c) min and max temperatures that thermometer can measure
 d) None of above
61. The amplifier mostly used for biomedical applications is
 a) single ended amplifier b) differential amplifier
 c) inverting amplifier d) chopper amplifier
62. Temperature of the human body is 98.4°F. Find the corresponding temperatures on the Celsius scale.
 a) 309.9°C b) 39.9°C c) 36.9°C d) 40°C
63. In physics, a common instrument to measure diameter of a circle is known as
 a) Rule b) Measuring tape c) Calipers d) Inch tape
64. Newton's Second Law of Motion given
 a) definition for Force b) definition for torque
 c) equation for force d) none of these
65. A sum of money amounts to Rs.6690 after 3 years and to Rs.10035 after 6 years on compound interest. Find the sum.
 a) 4460 b) 4630 c) 2640 d) 5000
66. Solar cell converts
 a) Sound energy into electrical energy
 b) Electrical energy into mechanical energy
 c) Solar energy into electrical energy
 d) Electrical energy into light energy
67. If $(1 + ax)^n = 1 + 8x + 24x^2 + \dots$, then a is equal to
 a) 1 b) 2 c) 0 d) 8
68. SI unit for length is
 a) centimeter b) inches c) meter d) yards
69. Light from the Sun reaches us in nearly
 a) 2 minutes b) 4 minutes c) 8 minutes d) 16 minutes
70. $4 \cos 20^\circ \cos 40^\circ \cos 80^\circ =$
 a) 1/16 b) 1/4 c) 1/2 d) -1/2
71. Sound is produced due to
 a) friction b) circulation c) vibration d) refraction
72. The maximum value of $\cos 2\theta + \sin \theta$ is
 a) 9/8 b) 3/4 c) 5/4 d) 7/8
73. The Pa (Pascal) is the unit for
 a) Pressure b) conductivity c) force d) time
74. If the sides of a triangle are 7, $4\sqrt{3}$ and $\sqrt{13}$, then the smallest angle of the triangle is
 a) 15° b) 30° c) 36° d) 45°

75. If $r_1 = r_2 = r_3$, then the triangle is
 a) right angled b) isosceles c) equilateral d) obtuse angled
76. Metals are good conductors of electricity because
 a) the atoms are lightly packed b) they have high melting point
 c) they contain free electrons d) none of the above
77. Which terminal of a PNP transistor is connected to positive supply?
 a) collector b) emitter c) base d) collector & emitter
78. A stick partially immersed in water looks bend, it is a phenomenon of
 a) Reflection b) Parallax view c) Radiation d) Refraction
79. Sound waves can pass through
 a) vacuum b) air only
 c) air and other states of matter d) vacuum and other states of matter
80. A car travels 50 miles an hour, and a plane travels 10 miles a minute. How far will the car travel when the plane travels 500 miles?
 a) 50.4 miles b) 37.5 miles c) 41.6 miles d) 39.7 miles
81. If a circle of constant radius $3k$ passes through the origin and meets the axes at A and B, the locus of the centroid of triangle OAB is the circle
 a) $x^2 + y^2 = 4k^2$ b) $x^2 + y^2 = 9k^2$ c) $x^2 + y^2 = k^2$ d) $x^2 + y^2 = 3k^2$
82. Two inputs A and B of NAND gate have 0 output, if
 a) A is 0 b) B is 0 c) both are zero d) both are 1
83. The sum of the three angles in an equilateral triangle is
 a) 180° b) 60° c) 360° d) 30°
84. Optical fiber works on the
 a) Refraction b) Total internal reflection c) interference d) polarization
85. If one root of the equation $6x^2 + ax + 6 = 0$ is $2/3$, then the value of a is
 a) 2 b) 3 c) 13 d) -13
86. What is the range of mercury thermometer?
 a) 0 degree Celsius to 350 degree Celsius
 b) -10 degree Celsius to 350 degree Celsius
 c) -20 degree Celsius to 350 degree Celsius
 d) -30 degree Celsius to 350 degree Celsius
87. If A is a square matrix, then $A + A^T$ is
 a) unit matrix b) null matrix
 c) symmetric matrix d) skew symmetric matrix
88. If the product $AB \neq 0$, then
 a) $A=0, B \neq 0$ b) $A=0$ and $B=0$
 c) either $A=0$ or $B=0$ d) neither A nor B need to be equal to zero
89. In op-amp, signal applied at inverting terminal appears at output terminal with a phase
 a) 0 b) 90 c) 180 d) 45
90. Electrocardiogram is an equipment used to measure the
 a) Electrical activity of Heart
 b) Electrical activity of the human body
 c) Movement of heart
 d) Heart's sound

