

NAT I Medical Physics

Sr	Questions	Answers Choice
1	To get a resultant displacement of 10 m, two displacement vectors of magnitude 6 m and 8 m should be combined	A. Parallel B. Antiparallel C. At angle 60° D. Perpendicular to each other
2	The angle between rectangular components of a vector is	A. 0° B. 60° C. 90° D. 120°
3	Which of the following is a scalar quantity	A. Density B. Displacement C. Torque D. Weight
4	In a Millikan's oil drop experiment the charge on an oil drop is calculated to be 6.35×10^{-19} C. The number of excess electrons on the drop is	A. 3.9 B. 4 C. 4.2 D. 6
5	If the earth were to rotate faster than its present speed the weight of an object will	A. Increase at the equator but remain unchanged at the poles B. Decrease at the equator but remain unchanged at the poles C. Remain unchanged at the decrease but decrease at the poles D. Remain unchanged at the equator but increase at the poles
6	Two forces of 10N and 15N are acting simultaneously on an object in the same direction. Their resultant is	A. Zero B. 5N C. 25N D. 150N
7	In an L-R circuit time constant is that time in which current grows from zero to the value	A. $0.63 I_0$ B. $14.44444465637207 \times 10^{-5} I_0$ C. $14.44444465637207 \times 10^{-7} I_0$ D. $14.44444465637207 I_0$
8	Boyle's law is applicable in	A. Isochoric process B. Isothermal process C. Isobaric process D. Isotonic process
9	When sound waves travel from air to water which of these remains constant?	A. Velocity B. Frequency C. Wavelength D. All the above
10	The conductivity of a superconductor is	A. Infinite B. Very large C. Very small D. Zero
11	In a common base transistor circuit the current gain is 0.98. On changing the emitter current by 5.00 mA, the change in collector current is:	A. 0.196 mA B. 2.45 mA C. 4.9 mA D. 5.1 mA
12	Huygen's wave theory of light cannot explain	A. Diffraction B. Interference C. Polarization D. Photoelectric effect
13	What remains constant when the earth revolves around the sun?	A. Angular momentum B. Linear momentum C. Angular kinetic energy D. Linear kinetic energy

14	A p-n junction has a thickness of the order of	A. 1 cm B. 1 mm C. 10^{-6} cm D. 10^{-12} cm
15	The velocity of a particle at an instant is 10 m/s and after 5 s the velocity of the particle is 20 m/s. The velocity 3s before in m/s is:	A. 8 B. 4 C. 6 D. 7
16	The half life of a radio-isotope is 5 years The fraction of atoms decayed in this substance after 15 years will be	A. 1 B. $\frac{3}{4}$ C. $\frac{7}{8}$ D. $\frac{5}{8}$
17	Two masses of 1 g and 4 g are moving with equal kinetic energies The ratio of the magnitudes of their linear moments is:	A. 4 : 1 B. $\sqrt{2}$: 1 C. 1 : 2 D. 1 : 16
18	If the metal bob is a simple pendulum is replaced by a wooden bob, then its time period will	A. Increase B. Decreases C. Remain the same D. First 'A' then 'B'
19	A body is dropped from a tower with zero velocity reaches ground in 4s. The height of the tower is about	A. 80 m B. 20 m C. 160 m D. 40 m
20	In a simple harmonic motion (SHM) which of the following does not hold?	A. The force on the particle is maximum at the ends B. The acceleration is minimum at the mean position C. The potential energy is maximum at the mean position D. The kinetic energy is maximum at the mean position.