NAT I Medical Physics

Sr	Questions	Answers Choice
1	A couple produces	A. Purely linear motion B. Purely rotational motion C. Linear and rotational motion D. No motion
2	At a certain instant a stationary transverse wave is found to have maximum kinetic energy the appearance of string of that instant is:	A. Sinusoidal shape with amplitude A/3 B. Sinusoidal shape with amplitude A/2 C. Sinusoidal shape with amplitude A D. Straight line
3	Two electric bulbs of 200 W and 100 W have same voltage.If R1 and R2 be their resistance respectively then	A. R₁ = 2R₂ B. R₂ = 2R₁ C. R₂ = 4R₁ D. R₁ = 4R₂
4	A train of 150 m length is going towards north direction at a speed of 10 ms^{-1} A parrot flies at a speed of 5 ms^{-1} towards south direction parallel to the railway track,The time taken by the parrot to cross the train is equal to	A. 12 s B. 8 s C. 15 s D. 10 s
5	Ball pen function on the principle of	A. Viscosity B. Boyle's law C. Gravitational force D. Surface tension
6	In an ac circuit with voltage V and current 1 the power dissipated is	A. VI B. 1/2 VI C. 1/√2 VI D. Depends on the phase between V and 1
7	An ideal choke (used along with fluorescent tube) would be	A. A pure resistor B. A pure capacitor C. A pure inductor D. A combination of an inductor and a capacitor
8	The distance between node and anti-node is	A. λ B. λ/2 C. λ/4 D. 2λ
9	The dimensional formula of toque is:	A. [ML²T²] B. [MLT²] C. [ML⁻¹T⁻²] D. [ML⁻²T⁻²]
	The acceleration 'a' in m/s^2 of a particle is given by $a = 3t^2 + 2t + 2$ where 't' is the time if	A. 12 m/s

10	The acceleration 'a' in m/s² of a particle is given by a = 3t² + 2t + 2, where 't' is the time if the particle starts out with a velocity v = 2 m/s at t = 0, then the velocity at the end of 2 second is	B. 24 m/s C. 18 m/s D. 36 m/s
11	The dimensional formula for the modulus of elasticity is same as that for.	A. Stress B. Strain C. Velocity D. Surface tension
12	In which case dose the potential energy decreases?	A. On compressing a spring B. On stretching s spring C. One moving a body against gravitational force D. One the rising of an air bubble in water
13	For obtaining appreciable extension the wire should be	A. Short and thin B. Long and thin C. Short and tick D. Long and thick
14	Two point charge +3μC and +8μC repel each other with a force of 40 N. if a charge of -5μC is added to each of them then the force between will become	A. -10N B. +10N C. +20N D. -20N
15	Which one of the following phenomena is not explained by Huygen's construction of wavefront?	A. Refraction B. Reflection C. Diffraction D. Origin of spectra
16	The angle between rectangular components of a vector is	A. 0° B. 60° C. 90° D. 120°
17	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.
18	What is the average energy of N molecules of monoatomic gas?	A. 1/2 NkT B. NkT C. 3/2 NkT D. 5/2 NkT
19	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. 3/4 C. 7/8 D. 5/8
20	In a capacitive circuit	A. Current leads voltage by phase of π/2 B. Voltage leads current by phase of π/2 C. Current and voltage are in same phase D. Sometime current and sometime voltage leads