NAT I Medical Physics

Sr	Questions	Answers Choice
1	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
2	Boyle's law is applicable in	A. Isochoric process B. Isothermal process C. Isobaric process D. Isotonic process
3	Which of the following sources give discrete emission spectrum?	A. Incandescent electric bulb B. Sun C. Mercury vapour lamp D. Candle
4	A motorist travels A to B at a speed at 40 km/h and returns at speed of 60 km/h. His average speed will be:	A. 40 km/h B. 48 km/h C. 50 km/h D. 60 km/h
5	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
6	Which of the following particle would experience the largest magnetic force when projected with the same velocity perpendicular to a magnetic field?	A. Proton B. Electron C. He⁺ D. Li⁺
7	Radio waves of constant amplitude can be generated with	A. Rectifier B. Filter C. FET D. Oscillator
8	The fundamental unit which has same power in the dimensional formula of surface tension and viscosity is:	A. Mass B. Length C. Time D. None
9	Which of the modulus of elasticity is involved in compressing a rod to decrease its length?	A. Young's modulus B. Bulk modulus C. Modulus of rigidity D. None of the above
10	The magnetic moment of a circular coil carrying current is	A. Directly proportional to the length of the wire in the coil B. Inversely proportional to the length of the wire in the coil C. Directly proportional to the square of the length of the wire in the coil D. Inversely proportional to the square of the length of the wire in the coil
11	If the dot product of two non-zero vectors vanishes the vectors will be	A. In the same direction B. Opposite to each other C. Perpendicular to each other D. Zero
12	Two bodies of masses m_1 and m_2 have equal momentum their kinetic energies E_1 and E_2 are in the ratio	A. √m₁ : √m₂ B. m ₁: m ₂ C. m ₂: m ₁ D. m

		₁ ² : m ₂²
13	How does the Young's modulus vary with the increase of temperature?	A. Decrease B. Increase C. Remains constant D. First increases and then decreases
14	The number of translation degrees of freedom for a diatomic gas is	A. 2 B. 3 C. 5 D. 6
15	A ten-ohm electric heater operates on a 110 V line Calculate the rate at which it develops heat in watts:	A. 1310 W B. 670 W C. 810 W D. 1210 W
16	A 2 kg body and a 3 kg body have equal momentum if the kinetic energy of 3 kg body is 10 j, the KE of 2 kg body will be	A. 6.66 j B. 15 j C. 22.5 j D. 45 j
17	Huygen's wave theory of light cannot explain	A. Diffraction B. Interference C. Polarization D. Photoelectric effect
18	The dimensional formula of toque is:	A. [ML²T²] B. [MLT²] C. [ML⁻¹T⁻²] D. [ML⁻²T⁻²]
19	Planck's constant has the dimensions of:	A. Energy B. Momentum C. Frequency D. Angular momentum
20	Two point charges placed at distance of 20 cm in air repel each other with a certain force.When a dielectric slab of thickness 8 cm and dielectric constant K is introduced between these point charges force of interaction becomes half of its previous value Then K is approximately.	A. 2 B. 4 C. √2 D. 1