

NAT I Medical Physics

Sr	Questions	Answers Choice
1	Two electric bulbs of 200 W and 100 W have same voltage. If R1 and R2 be their resistance respectively then	<p>A. $R_1 = 2R_2$</p> <p>B. $R_1 = 4R_2$</p> <p>C. $R_1 = R_2$</p> <p>D. $R_1 = \frac{1}{4}R_2$</p>
2	Copper and germanium are cooled to 70 K from room temperature then	<p>A. Resistance of copper increases while that of germanium decreases</p> <p>B. Resistance of copper decreases while that of germanium increases</p> <p>C. Resistance of both decreases</p> <p>D. Resistance of both increases</p>
3	The essential distinction between X-rays and γ -rays is that	<p>A. γ-rays have smaller wavelength than X-rays</p> <p>B. γ-rays emanate from nucleus while X-rays emanate from outer part of the atom</p> <p>C. γ-rays have greater ionizing power than X-rays</p> <p>D. γ-rays are more penetrating than X-rays</p>
4	Two point charge $+3\mu\text{C}$ and $+8\mu\text{C}$ repel each other with a force of 40 N. If a charge of $-5\mu\text{C}$ is added to each of them then the force between will become	<p>A. -10N</p> <p>B. +10N</p> <p>C. +20N</p> <p>D. -20N</p>
5	When a hydrogen atom is bombarded the atom is excited to the $n = 4$ state of hydrogen atom. The energy released when the atom falls from $n = 4$ state to the ground state is	<p>A. 1.275 eV</p> <p>B. 12.75 eV</p> <p>C. 5 eV</p> <p>D. 8 eV</p>
6	A monochromatic source of light is placed at a large distance d from a metal surface. Photoelectrons are ejected at rate n , kinetic energy being E . If the source is brought nearer to distance $d/2$, the rate and kinetic energy per photoelectron become nearly	<p>A. $2n$ and $2E$</p> <p>B. $4n$ and $4E$</p> <p>C. $4n$ and E</p> <p>D. n and $4E$</p>
7	The dot product of two vectors is negative when	<p>A. They are parallel vectors</p> <p>B. They are anti-parallel vectors</p> <p>C. They are perpendicular vectors</p> <p>D. None of the above is correct</p>
8	Which of the following particle would experience the largest magnetic force when projected with the same velocity perpendicular to a magnetic field?	<p>A. Proton</p> <p>B. Electron</p> <p>C. He^{+}</p> <p>D. Li^{+}</p>
9	Choose the correct statement	<p>A. Both an ammeter and voltmeter should have small resistance</p> <p>B. Both an ammeter and a voltmeter should have large resistance</p> <p>C. An ammeter should have large resistance and a voltmeter should have small resistance</p> <p>D. An ammeter should have small resistance and a voltmeter should have large resistance</p>
10	Which of the following is equal to: joule x ohm / volt x second ?	<p>A. Ampere</p> <p>B. Volt</p> <p>C. Watt</p> <p>D. Tesla</p>

11	With the increase of temperature viscosity	A. Increase B. Decrease C. Remains same D. Doubles
12	A sun rise or sun set, the sun looks reddish because.	A. The sun is coldest at these times B. Of the effects of reflection and refraction C. The sun is hottest at these times D. Of the scattering of light
13	Bernoulli's equation is based upon law of conservation	A. Mass B. Momentum C. Energy D. None of these
14	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
15	The peak voltage in a 200 volt A.C supply is nearly	A. 220 B. 253 C. 311
16	At constant volume temperature is increased then	A. Collision on walls will be less B. Number of collisions per unit time will increase C. Collisions will be in straight lines D. Collisions will not change
17	The smooth or steady stream-line flow is know as	A. Laminar flow B. Turbulent flow C. Both a and b D. None of the above
18	In case of p-n junction diode at high value of reverse bias the current rises sharply The value of reverse bias is known as	A. Cut off voltage B. Zener voltage C. Inverse voltage D. Critical voltage
19	The initial velocity of a body moving along a straight line in 7 m/s. It has a uniform acceleration of 4 m/s^2 . The distance covered by the body in the 5th second of its motion is	A. 25 m B. 35 m C. 50 m D. 85 m
20	Which quantity is increased in step-down transformer?	A. Current B. Voltage C. Power D. Frequency