



Adamas University Admission Test (AUAT) for the  
Program Post M.Sc. Diploma in Medical Physics  
(AERB Approved)



jointly offered with Netaji Subhash Chandra Bose Cancer  
Hospital, Kolkata

Sample Questions  
Attempt All Questions

Q1. A person observes the period of a simple pendulum to be  $z$  sec. After that person establish the set of pendulums in a crane which is going upward. The upward acceleration is  $0.25g$ . Which one of the following will be the period of acceleration?

a) $\sqrt{1.25} z$	b) $\frac{z}{\sqrt{1.25}}$	c) $\frac{z}{1.25}$	d) None of the above
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Q2. If  $\vec{F}$  represents a central force then:

a) $\vec{v} \cdot \vec{F} = 0$	b) $\vec{v} \times \vec{F} = 0$	c) $\vec{v} \cdot (\vec{v} \times \vec{F}) = 0$	d) None of the above
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Q3. The moment of inertia of a solid sphere of radius  $a$  and mass  $M$  about a diameter is:

a) $\frac{2}{5} Ma^2$	b) $\frac{1}{2} Ma^2$	c) $Ma^2$	d) $\frac{3}{5} Ma^2$
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Q4. A person standing in an elevator finds his weight less than his actual weight:

a) The elevator moves upward with constant acceleration	b) The elevator moves downward with constant acceleration	c) The elevator moves upward with constant velocity	d) The elevator moves downward with constant velocity
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Q5. How many generalized coordinates are required to specify the configuration of a rigid body in Space?

a) Four	b) Three	c) Infinite	d) Six
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Q6. The shortest distance between two fixed points in a plane is:

a) Hyperbola	b) Parabola	c) Straight line	d) Half-Circle
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Q7. At what speed does a clock move if it runs at a rate which is one-half the rate of a clock at rest?

a) $\frac{c}{2}$	b) $2c$	c) $c/\sqrt{2}$	d) $0.87c$
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Q8. What is the primary difference between an NPN transistor and a PNP transistor?

a) The doping of the semiconductor layers	b) The direction of current flow	c) The size of the transistor	d) The voltage rating
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**Sample Questions**

**Q9. Which of the following materials exhibits a negative temperature coefficient of resistance?**

a) Copper	b) Silicon	c) Germanium	d) Carbon
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**Q10. In digital electronics, what is the term used to describe the time it takes for a signal to propagate through a logic gate?**

a) Delay time	b) Rise time	c) Fall time	d) Setup time
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**Q11. According to the shell model of the nucleus which is incorrect?**

a) Magic numbers exist	b) Nucleons interact with their nearest neighbors only	c) Nucleons in a nucleus interact with a general force field	d) Large electronic quadrupole moment exists for certain nuclei
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**Q12. Beta decay spectrum is:**

a) Continuous spectrum	b) Discrete spectrum	c) Discontinuous spectrum	d) None of the above.
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**Q13. If the density of Fe nucleus is X, the density of Au nucleus will be:**

a) X/2	b) X/4	c) X/3	d) X
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**Q14. Energy eigen values of hydrogen atom is proportional to –**

a) $n^2$	b) $n$	c) $\frac{1}{n^2}$	d) $-\frac{1}{n^2}$
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**Q15. Half-life of a radio-active materials is 4 days. After 20 days, the fraction remaining undecayed will be –**

a) 1/32	b) 1/20	c) 1/16	d) 1/8
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