Waves - MCQ Practice (JSSC CGL Technical & PGT Exam)



Q1. The displacement of a particle in SHM is $x = A \cos(\omega t + \phi)$. The maximum velocity is:

- Α) Αω
- B) A/ω
- C) ω / A
- D) A₂ω

Answer: A) Aω. Maximum velocity = amplitude × angular frequency.

Q2. In damped oscillation, the amplitude decreases:

- A) Linearly
- B) Exponentially
- C) Reciprocal
- D) Constant

Answer: B) Exponentially. A(t) = $A_0e^{-\beta t}$

Q3. In forced oscillation, maximum amplitude occurs when driving frequency equals:

- A) Natural frequency
- B) Half natural frequency
- C) Double natural frequency
- D) Independent

Answer: A) Natural frequency. Condition for resonance.

Q5. The distance between node and antinode in stationary wave is:

- Α) λ
- B) λ/2
- C) $\lambda/4$
- D) $\lambda/8$

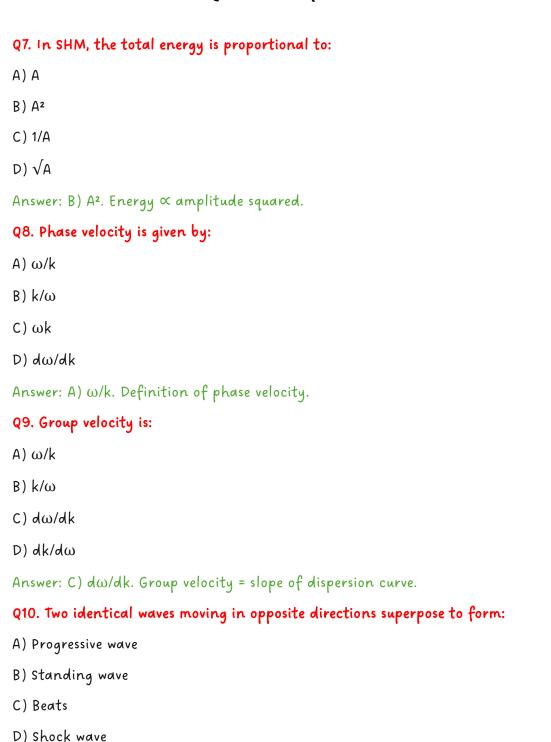
Answer: C) $\lambda/4$. Node to antinode spacing is quarter wavelength.

Q6. The condition for resonance in a series RLC circuit is:

- A) XL = XC
- B) XL > XC
- C) XL < XC
- D) XL = R

Answer: A) XL = XC. Resonance occurs when inductive and capacitive reactances cancel.

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Answer: B) Standing wave. Opposite waves \rightarrow stationary nodes & antinodes.

