Model questions on chapter 9 kinematics

1. It is mechanical wave transmitted as compression or strain wave through a medium which are the object cause of hearing	**Sound**
2. Light wave is	**Transverse wave**
3. Sound wave is	**Longitudinal wave**
4. It consists of molecules with two area compression and rarefaction	**Longitudinal wave**
5. it is it is the area at which the molecules are closer together.	**Compression**
6. it is the area at which the molecules are more spare	**Rarefaction**
7. Equation of speed of wave sound	$c_{sound} = \sqrt{\frac{B}{\rho}}$
8. As the density of the medium increases ……………………… increases	**The speed of sound**
9. Speed of sound depends on the	**Materials through which it travels**
10. The bulk modulus of water is 2.2×10^9 and its density 1000 kg/m^3. The speed of sound in water is	**1483**
11. Calculate the proportion of a sound wave's energy transmitted as an air/water boundary z_1=413 kgm^{-2}s^{-1} , z_2 = 1.44x106 kgm^{-2}s^{-1} ,	**R=2.87x10-4** **T= 1- $(1-r)^2/(1+r)^2$ =0.001**
12. A property of a medium which determines many of acoustic properties	**A caustic impedance**
13. The relation between the acoustic impedance and the speed of sound	**Z=ρ x c_{sound}**
14. the apparent highness or lowness of sound which is determine by frequency.	**Pitch**
15. the magnitude of the auditory sensation produces by sound wave determine by amplitude and frequency	**Loudness**
16. logarithmic unit used to compare ratios (sound pressure, power, intensity).	**Decibel**
17. The apparent shift in frequency (and hence pitch) of a sound when the source and observer are in relative motion	**Doppler effect**
18. Moving source fixed observer (towards each other)	$f' = f\frac{c}{c - v_s}$
19. The hooter of an approaching taxi has a frequency of 500 Hz. If the taxi is travelling at 30 m·s^{-1} and the speed of sound is 340 m·s^{-1}, calculate the frequency of sound that you hear when the taxi is approaching you.	**548.4HZ**
20. Moving source fixed observer (away from each other)	$f' = f\frac{c}{c + v_s}$

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21. The hooter of an approaching taxi has a frequency of 500 Hz. If the taxi is travelling at 30 $m\cdot s^{-1}$ and the speed of sound is 340 $m\cdot s^{-1}$, calculate the frequency of sound that you hear when the taxi is away from you?	**459.46 HZ**
22. When an automobile moves towards a listener, the sound of its horn seems relatively	**High Pitched (high frequency)**
23. When the automobile moves away from the listener, its horn seems	**Low pitched (low frequency)**
24. The changed pitch of the Doppler effect is due to changes in	**wave frequency**
25. Fixed source moving observer (towards each other)	$\boldsymbol{f' = f\frac{c + v_d}{c}}$
26. Fixed source moving observer (away from each other)	$\boldsymbol{f' = f\frac{c - v_d}{c}}$
27. The hooter of taxi has a frequency of 500 Hz. If the taxi is travelling at 30 $m\cdot s^{-1}$ and you are travelling with speed 10 ms^{-1} and the speed of sound is 340 $m\cdot s^{-1}$, calculate the frequency of sound that you hear when the taxi is away from you	**548.4 Hz**