

PYQSide

NEET WAVES — DOPPLER EFFECT — PYQS

Max. Marks: 44

Questions: 11

Section A (MCQ)

- Q.1** Two cars moving in opposite directions approach each other with speed of 22 m s^{-1} and 16.5 m s^{-1} respectively. The driver of the first car blows a horn having a frequency 400 Hz . The frequency heard by the driver of the second car is (velocity of sound is 340 m s^{-1}) [NEET 2017]

(1) 361 Hz (2) 411 Hz (3) 448 Hz (4) 350 Hz

Scan or tap for the full solution



- Q.2** A siren emitting a sound of frequency 800 Hz moves away from an observer towards a cliff at a speed of 15 m s^{-1} . Then, the frequency of sound that the observer hears in the echo reflected from the cliff is

(Take velocity of sound in air = 330 m s^{-1})

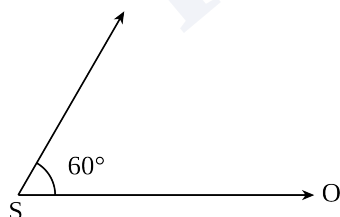
[NEET 2016 (Phase 1)]

(1) 838 Hz (2) 885 Hz (3) 765 Hz (4) 800 Hz

Scan or tap for the full solution



- Q.3** A source of sound S emitting waves of frequency 100 Hz and an observer O are located at some distance from each other. The source is moving with a speed of 19.4 m s^{-1} at an angle of 60° with the source observer line as shown in the figure. The observer is at rest. The apparent frequency observed by the observer (velocity of sound in air 330 m s^{-1}), is [AIPMT 2015]



(1) 106 Hz (2) 97 Hz (3) 100 Hz (4) 103 Hz

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- Q.4** A speeding motorcyclist sees traffic jam ahead of him. He slows down to 36 km hour^{-1} . He finds that traffic has eased and a car moving ahead of him at 18 km hour^{-1} is honking at a frequency of 1392 Hz . If the speed of sound is 343 m s^{-1} , the frequency of the honk as heard by him will be [AIPMT 2014]

(1) 1332 Hz (2) 1372 Hz (3) 1412 Hz (4) 1454 Hz

Scan or tap for the full solution



- Q.5** Two sources P and Q produce notes of frequency 660 Hz each. A listener moves from P to Q with a speed of 1 m s^{-1} . If the speed of sound is 330 m/s , then the number of beats heard by the listener per second will be [NEET 2013 (Karnataka)]

(1) 4 (2) 8 (3) 2 (4) zero

Scan or tap for the full solution



- Q.6** A train moving at a speed of 220 m s^{-1} towards a stationary object, emits a sound of frequency 1000 Hz . Some of the sound reaching the object gets reflected back to the train as echo. The frequency of the echo as detected by the driver of the train is

(Speed of sound in air is 330 m s^{-1})

[AIPMT 2012 (Mains)]

(1) 3500 Hz (2) 4000 Hz (3) 5000 Hz (4) 3000 Hz

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- Q.7** The driver of a car travelling with speed 30 m/s towards a hill sounds a horn of frequency 600 Hz . If the velocity of sound in air is 330 m/s , the frequency of reflected sound as heard by driver is [AIPMT 2009]

(1) 555.5 Hz (2) 720 Hz
(3) 500 Hz (4) 550 Hz

Scan or tap for the full solution



- Q.8** A car is moving towards a high cliff. The driver sounds a horn of frequency f . The reflected sound heard by the driver has frequency $2f$. If v is the velocity of sound, then the velocity of the car, in the same velocity units, will be [AIPMT 2004]

(1) $v/\sqrt{2}$ (2) $v/3$ (3) $v/4$ (4) $v/2$

Scan or tap for the full solution



- Q.9** An observer moves towards a stationary source of sound with a speed $1/5^{\text{th}}$ of the speed of sound. The wavelength and frequency of the source emitted are λ and f respectively. The apparent frequency and wavelength recorded by the observer are respectively [AIPMT 2003]

(1) $1.2f, 1.2\lambda$

(2) $1.2f, \lambda$

(3) $f, 1.2\lambda$

(4) $0.8f, 0.8\lambda$

Scan or tap for the
full solution

Q.10 A whistle revolves in a circle with angular speed $\omega = 20 \text{ rad/s}$ using a string of length 50 cm. If the frequency of sound from the whistle is 385 Hz, then what is the minimum frequency heard by an observer which is far away from the centre (velocity of sound = 340 m/s) [AIPMT 2002]

(1) 385 Hz (2) 374 Hz (3) 394 Hz (4) 333 Hz

Scan or tap for the
full solution

Q.11 Two stationary sources each emit waves of wavelength λ . An observer moves from one source to the other with velocity u . Then the number of beats heard by him is [AIPMT 2000]

(1) $\frac{2u}{\lambda}$ (2) $\frac{u}{\lambda}$ (3) $\sqrt{u\lambda}$ (4) $\frac{u}{2\lambda}$

Scan or tap for the
full solution**ANSWER KEY**

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	3	1	4	3	1	3	2	2	2	2	1