

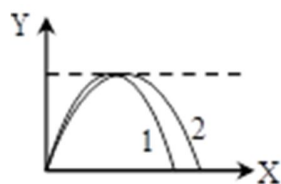


Max Marks: 60

Date: 04.09.2022

**NEET 24 BATCH
PHYSICS : DCT
Topic: Projectile Motion**

- If a projectile thrown with a speed v at an angle 45° to the horizontal attains a maximum height of 62m, its range will be -
(a) 31 m (b) 248 m (c) 124 m (d) 62 m
- A body is projected at 30° angle with the horizontal with velocity 30 ms^{-1} . What is the angle with the horizontal after 1.5 s? (Take $g = 10 \text{ m s}^{-2}$)
(a) 0° (b) 30° (c) 60° (d) 90°
- Trajectories of two projectiles are shown in the figure. Let T_1 and T_2 be the time of flights and u_1 and u_2 be their speeds of projection. Then -



- (a) $T_2 > T_1$ (b) $T_1 > T_2$ (c) $u_1 > u_2$ (d) $u_1 < u_2$
- A body is projected at an angle of 30° with the horizontal with momentum p . At its highest point, the momentum is -
(a) p (b) $\frac{p}{2}$ (c) $\frac{\sqrt{3}}{2} p$ (d) $\frac{2}{\sqrt{3}} p$
- Two projectiles are thrown with the same initial velocity at angles α and $(90^\circ - \alpha)$ with the horizontal. The maximum heights attained by them are h_1 and h_2 respectively. Then $\frac{h_1}{h_2}$ is equal to -
(a) $\sin^2 \alpha$ (b) $\cos^2 \alpha$ (c) $\tan^2 \alpha$ (d) 1

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6. An object is thrown along a direction inclined at an angle of 45° with the horizontal direction. The horizontal range of the particle is -
- (a) four times the vertical height (b) thrice the vertical height
(c) twice the vertical height (d) equal to vertical height
7. If R is the range for an angle of projection of 15° with the horizontal, then the other angle of projection for which the range is R , is -
- (a) 75° (b) 60° (c) 45° (d) 30°
8. A ball whose kinetic energy is E , is projected at an angle of 45° to the horizontal. The kinetic energy of the ball at the highest point of its flight will be -
- (a) E (b) $E/\sqrt{2}$ (c) $E/2$ (d) zero
9. A body is projected from the ground at an angle of 60° with the horizontal. The ratio of the maximum height attained by it to its horizontal range is-
- (a) $\sqrt{3} : 1$ (b) $\sqrt{3} : 2$ (c) $1 : \sqrt{3}$ (d) $\sqrt{3} : 4$
10. In a projectile motion the velocity -
- (a) is always perpendicular to the acceleration
(b) is never perpendicular to the acceleration
(c) is perpendicular to the acceleration for one instant only
(d) is perpendicular to the acceleration for two instant
11. A body is projected with initial velocity of 2m/s in both X and Y direction. The horizontal range is approximately-
- (a) 1 m (b) 0.9 m (c) 0.8 m (d) 0.7 m
12. A cricket ball is thrown at 60° to the horizontal with kinetic energy E . Then the kinetic energy at the highest point is-
- (a) zero (b) $E/4$ (c) $E/2$ (d) $3E/4$

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13. The range of a projectile which is launched at an angle of 15° with the horizontal is 1.5 km. What is the range of the projectile if it is projected at an angle 45° to the horizontal?
- (a) 1.5 km (b) 3 km (c) 0.75 km (d) 6 km
14. The ceiling of a tunnel is of 5m high. What is the maximum horizontal distance that a ball thrown with a speed of 20 m/s, can go without hitting the ceiling of the tunnel? (Take $g = 10 \text{ m/s}^2$)
- (a) 30 m (b) 40 m (c) $30\sqrt{2}$ m (d) $20\sqrt{3}$ m
15. Select the false statement in the projectile motion -
- (a) The horizontal range of a projectile is proportional to the square root of the speed of projection
- (b) For a given speed of projection, the angle of projection for the maximum range is $\frac{\pi}{4}$ radian
- (c) The time of flight of the projectile is proportional to the speed of projection
- (d) At the maximum height, the acceleration due to gravity is perpendicular to the speed of the projectile


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**NEET 24 BATCH
BIOLOGY : DCT
Topic: Plant Kingdom**

16. Chlamydomonas and Volvox are similar because
 (a) they are filamentous (b) they are colonial
 (c) they have diploid thallus (d) both of them are motile
17. Plants which are not differentiated into roots, stem and leaves are grouped under
 (a) Gymnosperms (b) Pteridophytes (c) Thallophytes (d) Spermatophytes
18. Which are the most primitive group of algae
 (a) Blue green algae (b) Red algae (c) Brown algae (d) Green algae
19. The spore of diatoms resulting from syngamy are called
 (a) Autospore (b) Auxospore (c) Androspore (d) Zygosporangium
20. Which of the following is the most advanced group of algae
 (a) Cyanophyta (b) Rhodophyta (c) Phaeophyta (d) Chlorophyta
21. Which of the algae is responsible for red colour of red sea

 (a) Chlamydomonas brauii (b) Trichodesmium erythrium
 (c) Ulothrix zonata (d) None of the above
22. One of the following is present in blue green algae
 (a) Starch (b) Cyanophycin granule
 (c) Any polysaccharide (d) Floridian starch
23. Origin and evolution of sex in algae is best seen in
 (a) Blue green algae (b) Green algae (c) Red algae (d) Brown algae

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24. Ability to fix atmospheric nitrogen is found in

- | | |
|--------------------------------|---------------------------|
| (a) Leaves of some crop plants | (b) Chlorella |
| (c) Some marine red algae | (d) Some blue green algae |

25. Kelps is obtained from

- | | | | |
|-----------|------------------|-------------------|-------------|
| (a) Algae | (b) Marine algae | (c) Aquatic algae | (d) Lichens |
|-----------|------------------|-------------------|-------------|

26. Algae differ from Riccia and Marchantia in having

- | | |
|---------------------------|------------------------------|
| (a) Multicellular body | (b) Multicellular sex organs |
| (c) Pyrenoids in the cell | (d) Thalloid body |

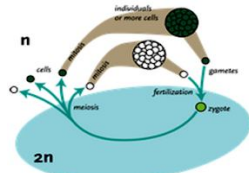
27. Heterocysts are



Heterocyst in *Anabaena*

- | | |
|--------------------------------|---------------------------------|
| (a) Green and thin walled | (b) Green and thick walled |
| (c) Colourless and thin walled | (d) Colourless and thick walled |

28. Zygotic meiosis is a characteristic feature of



Zygotic Meiosis

- | | |
|-------------------|-----------------|
| (a) Algae | (b) Bryophytes |
| (c) Pteridophytes | (d) Gymnosperms |

29. Cephaleuros is

- | | |
|-------------------------------|-----------------------------|
| (a) An epiphytic green algae | (b) A parasitic green algae |
| (c) A fresh water green algae | (d) A colourless red algae |

30. Sargasso sea is named after an algae Sargassum which is a

- | | | | |
|-----------------|-----------------|---------------|----------------------|
| (a) Green algae | (b) Brown algae | (c) Red algae | (d) Blue green algae |
|-----------------|-----------------|---------------|----------------------|

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PHYSICS : DCT ANSWER KEY
Topic: Projectile Motion

1.	(b)	2.	(a)	3.	(d)	4.	(c)	5.	(c)
6.	(a)	7.	(a)	8.	(c)	9.	(d)	10.	(c)
11.	(c)	12.	(b)	13.	(b)	14.	(d)	15.	(a)

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16.	(d)	17.	(c)	18.	(a)	19.	(b)	20.	(b)
21.	(b)	22.	(b)	23.	(b)	24.	(d)	25.	(b)
26.	(c)	27.	(d)	28.	(a)	29.	(b)	30.	(b)