AAROHAN 2017

Ascent of Knowledge

Class 11th - Answer Key and Hints

Q.No	Key	Q.No	Key	Q.No	Key	Q.No	Key
1	D	9	B	17	C	25	B
2	B	10	C	18	D	26	C
3	C	11	Bonus	19	C	27	D
4	A	12	A	20	B	28	C
5	A or D	13	B	21	Bonus	29	C
6	B	14	C	22	C	30	D
7	A	15	A	23	C	31	D
8	D	16	C	24	A	32	C

Class XI Physics Answers

1. D None of these

   Use conservation of momentum and then conservation of energy.

   4/3 E8 J.

2. B. Use same method at Apoapsis as used in Q1 and compare.
3. C. 49
   x/y = 32/17
4. A. 3.33%
   ((4/3 E8)/(4 E9)) *100
5. A and D
6. B
7. A. $2.14 *10^7$ kJ
8. D. Estes B6-4 and Estes A8-3 equally

MATHS

9. (B)

Use Vc2 $\sqrt{gR^2/r_2}$ =

10. (C)

In the paragraph, the order of energies is clearly mentioned E2>E>E1 (Magnitude and sign both need to be considered.)

11. BONUS

12. (A)

Impulse if given by the formula which is-

$$\Delta v_\pi = v_\pi - v_{c1} = \sqrt{\frac{\mu}{r_1}}\left(\sqrt{\frac{2r_2}{r_1+r_2}} - 1\right)$$

13. (B)

The energy order determines the acceleration/ deceleration.

14. (C)

Self Explanatory Option

15. (A)

The spacecraft travels one half of the hohmann transfer orbit, since by then it would have reached the destination. This is in fact, at the heart of the idea of using a Hohmann transfer orbit. (Read the paragraph again for more information)

16. (C)

The sign of the Δv's indicates the direction of thrusting (whether the energy is to be increased or decreased) and the total Δv is the sum of the magnitudes. Thus, 1847+1200= 3047.

17. (C) 368 $Jm^{-2}s^{-1}$- Length of methane region is 50 km everywhere, and light crosses before and after reflection. Hence 100 km crossed.

18. (D) All of the above

19. (C) 1.1×10^{-1} mols, 10^{-1} mols - Balancing the equation, number of moles of carbonate ion=½(moles of hydroxide ion)=moles methane.

20. (B) Microbes are not the only main source, and methane is also formed due to other chemical reactions, since the amount is more than what could have been produced by the microbes. - Microbes could form only about 1.8 ppb in 1 year, yet it is 2 ppb more than half.

21. Error

22. (C) n=8 to n=9

23. (C) No, evenly distributed at both places - methane has no dipole moment, and hence is not affected by magnetic fields.

24. (A) The absorption coefficient of methane is constantly changing due to pressure or temperature changes - the rest are not day-to-day changes.

Class 11 and 12 logic section

25. (B) Both will get 2 weeks of detention - since both will be worried that if they stay silent, the other will expose them and escape.

26. (C) 2 boys go for the prettiest girl among 3 girls, and neither gets her due to the competition - If either boy goes for another girl, the other boy gets the prettier girl without competition, and hence the boy who changed his method is not benefitted.

27. (D) 225 - Month began with Thursday, and 3 days A works. Then every weekday A works and on Saturday, B works. So $30+55\times3+30=225$

28. (C) 63

   2^n-1 where n is the total number of discs.

29. (C) 2400

30. (D) His grandfather's only son's wife is my sister

31. (D)
Analyse the sentences given with respect to their meaning and grammar. Arrive at the solution subsequently.

32. (C)
The correct response is (C). The original argument bases a conclusion that one phenomenon causes another on an observed correlation between the two phenomena. The argument boils down to the following:

Premise: X (beautiful beach) is correlated with Y (crowd of people).
Conclusion: X (beautiful beach) causes Y (crowd of people).

Answer choice (C) demonstrates the same pattern of reasoning:

Premise: X (warm weather) is correlated with Y (fleas).
Conclusion: X (warm weather) causes Y (fleas).