



ALL INDIA TALENT SEARCH EXAMINATION

Science Talent Search Examination

Time: 1 hour

Class - 11

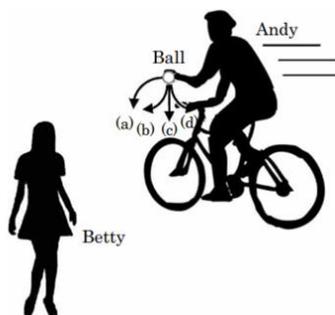
MM.100

IMPORTANT INSTRUCTIONS

1. Exam duration-1 hour
2. 25 MCQs with only one correct answer*
3. All questions are compulsory
4. Each questions carries 4 marks
5. No negative marking

*This paper contains sample questions and are to be used for reference purpose only.

1. An air bubble is released at certain depth inside water and the pressure difference inside and outside air bubble at that depth is x Pa. If the pressure difference inside and outside air bubble becomes $2x$ Pa as bubble rises up then at that point the radius of air bubble becomes
 - (a) Thrice
 - (b) Twice
 - (c) Remain same
 - (d) Half times
2. Most of the objects in universe are round because:
 - (a) of its own gravity
 - (b) its surface area is maximum
 - (c) its potential energy is high
 - (d) None of these
3. Andy who is riding a bicycle drops a ball while keeping his arm at rest. Betty who is standing on the ground watches it. Choose from (a) through (e) in Fig. the best path for the trajectory of the ball as seen by Betty.



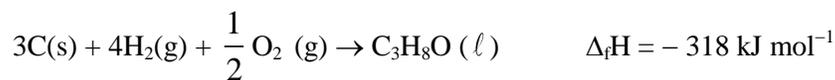
(a) a

(b) b

(c) c

(d) d

4. What is the change in enthalpy for complete combustion of one mole of liquid Isopropyl alcohol (molecular formula C_3H_8O)?



- (a) $- 362 \text{ KJ}$ (b) $- 998 \text{ kJ}$
(c) -2008 kJ (d) $- 4016 \text{ kJ}$
5. An organic molecule of four carbons is shown to be 55.1% carbon, 0.40% hydrogen and 18.4% oxygen by mass. Which of the following functional group is not present in the compound?
(a) Alcohol (b) Carboxylic acid (c) Amide (d) Alkene
6. A gaseous mixture containing Ethane and Methane underwent complete combustion to produce 5.28 g of CO_2 and 3.78 g of water. What is the volume ratio of Ethane to Methane in the original mixture?
(a) 1: 1 (b) 1: 2 (c) 2: 1 (d) 1: 4
7. A fuel/oxidant system consisting of monomethylhydrazine (CH_3NHNH_2) and N_2O_4 (both liquids) is commonly used in space vehicle propulsion. Components are mixed stoichiometrically so that N_2 , CO_2 and H_2O are the only products (all gases under the same reaction condition). How many moles of gases are produced from 100 ml of CH_3NHNH_2 ?
(a) 300 (b) 125 (c) 625 (d) 400
8. Oxyhaemoglobin is an unstable compound because:
(a) O_2 and haemoglobin reaction depends upon partial pressure.
(b) Haemoglobin is a conjugated protein.
(c) Haemoglobin is contained within RBCs.
(d) One haemoglobin binds with four molecules of oxygen.
9. The bicuspid valve is present in
(a) coronary sinus (b) auriculo – ventricular aperture
(c) ventriculo aortal aperture (d) Ventriculo pulmonary aperture
10. The mother may transmit syphilis to the new-born body. This is called
(a) Primary syphilis (b) Secondary syphilis
(c) Tertiary syphilis (d) Congenital syphilis