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XI/SCIENCE/2017-18
OLYMPIAD PRACTICE WORKSHEET

1. The reaction of propane with bromine is called?

- A. halogenations
- B. addition
- C. elimination
- D. combustion

2. The molecular formula of _____ fit the general formula (C_nH_{2n-2}).

- A. alkynes
- B. alcohols
- C. alkenes
- D. alkanes

3. For which of the following is cis-trans isomerism possible?

- A. 1,2-dibromoethyne
- B. 1,1-dibromoethane
- C. 1,1-dibromoethene
- D. 1,2-dibromoethene

4. The product of the reaction ($CH_3-CH=CH-CH_2-CH_2-CH_3 + Br_2$) is

- A. $CH_3-CHBr-CHBr-CH_2-CH_2-CH_3$
- B. $CH_3-CHBr_2-CHBr_2-CH_2-CH_2-CH_3$
- C. $CH_2=CHBr-CHBr-CH_2-CH_2-CH_3$
- D. $CH_3-CHBr=CHBr-CH_2-CH_2-CH_3$

5. The functional group contained in the compound $CH_2=CH_2$ is

- A. ester
- B. ketone
- C. alkene
- D. alcohol

6. An alkane with 7 carbon atoms contains _____ hydrogen atoms.

- A. 16
- B. 14
- C. 20
- D. 18

7. The reaction of propane with bromine is called?

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8. The specific heat of a gas in isothermal process is

- (A) Zero
- (B) Negative
- (C) Remains constant
- (D) Infinite

9. The r.m.s. velocity of the molecules in the sample of helium is $\frac{5}{7}$ th that of the molecules in the sample of hydrogen. If the temperature of the hydrogen sample is 0°C that of helium is (NCERT-80)

- (A) 0°C
- (B) 0°K
- (C) 273°C
- (D) 100°C

10. Mean square velocity of five molecules of velocities 2 m/s, 3 m/s, 4 m/s, 5 m/s and 6 m/s is

- (A) $10 \text{ m}^2/\text{s}^2$
- (B) $18 \text{ m}^2/\text{s}^2$
- (C) $20 \text{ m}^2/\text{s}^2$
- (D) $15 \text{ m}^2/\text{s}^2$

11. A gas is taken in a sealed container at 300 K. it is heated at constant volume to a temperature 600 K. the mean K.E. of its molecules is

- (A) Halved
- (B) Doubled
- (C) Tripled
- (D) Quadruple

12. The specific heat of a substance at its boiling point or melting point

- (A) Is zero
- (B) Is infinity
- (C) Is negative
- (D) Lies between 0 and 1

13. One mole of ideal gas required 207 J heat to rise the temperature by 10°K when heated at constant pressure. If the same gas is heated at constant volume to raise the temperature by the same 10°K the heat required is ($R = 8/3 \text{ J/mole } ^\circ\text{K}$)

- A) 1987 J
- (B) 29 J
- (C) 215.3 J
- (D) 124 J

14. The average translational K.E. of O_2 molecules (Molecular weight =32) at a particular temperature is .035 eV. What is the average translational K.E. of N_2 Molecules (Molecular weight = 28) at the same temperature?

- A) 0.028 eV
- (B) 0.055 eV
- C) 0.035 eV
- D) 0.075 eV

15. The specific heat of a gas

- (A) Has only one value
- (B) Has two values C_p and C_v
- (C) Is proportional to the square root of its absolute temperature
- D) Can have any value between 0 and infinity

16. Pulmonary veins carry

- (A) red oxygenated blood
- (B) bluish red deoxygenated blood
- (C) deoxygenated blood from heart to lungs
- (D) oxygenated blood from lungs to heart

17. When an artery dilates

- (A) lumen becomes constricted
- (B) lumen gets wider
- (C) person may appear pale
- (D) elastic muscles become ineffective

18. Endothelium is

- (A) elastic in nature
- (B) fully permeable
- (C) selectively permeable
- (D) non-permeable

19. When heart relaxes,

- (A) person respire
- (B) peristalsis movements occur
- (C) bile is produced
- (D) heart gets filled with blood

20. Veins do not require thick walls

- (A) as they do not have to work harder
- (B) they are required only occasionally
- (C) blood pressure declines while it gets to veins
- (D) blood pressure is immense