SRI VIDYA MANDIR MATRIC HR. SEC. SCHOOL, PALACODE - 636 808
II-33%EXAMINATION(2019-20)

SCIENCE-I

(A)

STD: X
DATE: 25.11.2019FN

| Exam No: | 1 | 0 | | | |

MARKS: 100
TIME: 02.30Hrs

PHYSICS

I. Choose the correct answer   6X1=6

1. Power of a lens is –4D, then its focal length is
   a) 4m   b) –40m   c) –0.25 m   d) –2.5 m

2. If VB, VG, VR be the velocity of blue, green and red light respectively in a glass prism, then which of the following statement gives the correct relation?
   a) VB = VG = VR   b) VB > VG >VR   c) VB < VG < VR   d) VB < VG > VR

3. Magnification of a convex lens is
   a) Positive   b) negative   c) either positive or negative   d) zero.

4. The frequency, which is audible to the human ear is
   a) 50 kHz   b) 20 kHz   c) 15000 kHz   d) 10000 kHz

5. If a sound wave travels with a frequency of 1.25×10^4 Hz at 344 m s^{-1}, the wavelength will be
   a) 27.52 m   b) 275.2 m   c) 0.02752 m   d) 2.752 m

6. Assertion: Sound travels faster in solids than in gases.
   Reason: Solid posses a greater density than that of gases.
   a) If both the assertion and the reason are true and the reason is the correct explanation of the assertion.
   b) If both the assertion and the reason are true but the reason is not the correct explanation of the assertion.
   c) If the assertion is true, but the reason is false.
   d) If the assertion is false, but the reason is true.

II. Answer any 7 questions: (Q.No.10 is Compulsory).   7X2=14

7. Why does sound travel faster on a rainy day than on a dry day?

8. Explain why, the ceilings of concert halls are curved.

9. **Fill up the blanks**:
   i. Rapid back and forth motion of a particle about its mean position is called _____.
   ii. A source of sound is travelling with a velocity 40 km/h towards an observer and emits a sound of frequency 2000 Hz. If the velocity of sound is 1220 km/h, then the apparent frequency heard by the observer is _____.

10. What will be the frequency sound having 0.20 m as its wavelength, when it travels with a speed of 331 m s^{-1}?

11. What is a longitudinal wave?

12. State Rayleigh's law of scattering.

13. **True or False. If false correct it**.

   i) Velocity of light is greater in denser medium than in rarer medium

   ii) The convex lens always gives small virtual image.

14. Match the following:

   a) Retina   -   path way of light

   b) Pupil   -   Far point comes closer

   c) Ciliary muscles -   near point moves away

   d) Myopia   -   screen of the eye.

   e) Hypermetropia   -   power of accommodation.

15. Why are traffic signals red in colour?

16. State snell's law.

III. Answer any 4 questions (Q.No.18 is Compulsory)   4X4=16

17. List out properties of light.

18. An object of height 3cm is placed at 10cm from a concave lens of focal length 15cm. Find the size of the image.

19. Differentiate the eye defects: Myopia and Hypermetropia.

20. What are the factors that affect the speed of sound in gases?

21. Air temperature in the Rajasthan desert can reach 46°C. What is the velocity of sound in air at that temperature? (V_0 = 331 m s^{-1})

22. When sound is reflected from a distant object, an echo is produced. Let the distance between the reflecting surface and the source of sound remain the same. Do you hear an echo sound on a hotter day? Justify your answer.

IV. 1.Answer all the questions, 2.Each question carries seven marks 3. Draw diagram wherever necessary.   2×7=14

23. a) Explain the construction and working of a 'Compound Microscope'.

                              (Or)

   b) Explain the rules for obtaining images formed by a convex lens with the help of ray diagram.

24. a) i) What do you understand by the term 'ultrasonic vibration'?

      ii) State three uses of ultrasonic vibrations.

      iii) Name three animals which can hear ultrasonic vibrations.

                              (Or)

   b. i) what is an echo?

      ii) State two conditions necessary for hearing an echo.

      iii) What are the medical applications of echo?

      iv) How can you calculate the speed of sound using echo?

CHEMISTRY

I. Choose the correct answer   12X1=12

1._____ is a relative periodic property

   a) Atomic radii   b) ionic radii   c) electron affinity   d) electro negativity

2. Which of the following have inert gases 2 electrons in the outermost shell?

   a) He   b) Ne   c) Ar   d) Kr

3. The basis of modern periodic law is_____.

   a) atomic number   b) atomic mass   c) isotopic mass   d) number of neutrons.

4. Neon shows zero electron affinity due to _____.

   a) stable arrangement of neutrons   b) stable configuration of electrons

   c) reduced size   d) increased density

5. The number of periods and groups in the periodic table are_____.

   a) 6,16   b) 7,17   c) 8,18   d) 7,18

6. If the distance between two Cl atoms in Cl_2 molecule is $1.98A^0$, then the radius of Cl atom is _____.   a) $0.99A^0$ b) $0.96A^0$ c) $0.88A^0$ d) $0.91A^0$

7. The chief ore of Aluminium is_____.

   a)Bauxite   b) haematite   c) Iron pyrite   d) Copper pyrites.

8. The molecular formula of an open chain Organic compounds is C_3H_6. The class of the compounds is __.   a)alkane   b)alkene   c)alkyne   d)alcohol

9. The IUPAC name of an organic compound is 3-Methyl butan-1-ol. What type compound it is?   a) Aldehyde   b) Carboxylic acid   c) Ketone   d) Alcohol

10. The general molecular formula of alkynes is_____.

    a) C_nH_{2n+2} b) C_nH_{2n} c) C_nH_{2n-2} d) C_nH_{-2n}

11. $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$ is a_____.

    a)reduction of Ethanol   b)combustion of Ethanol

    c) Oxidation of Ethanoic acid   d) Oxidation of Ethanol

12. The rectified spirit is an aqueous solution which contains about _____ of ethanol.   a) 95.5%   b) 75.5%   c) 55.5%   d) 45.5%

II. Answer any 6 questions: 6X2=12

13. Match the following

    a) Galvanisation   -   Noble gas elements

    b) Calcination   -   coating with Zn

    c) Redox reaction   -   silver-tin amalgam

    d) Dental filling   -   Alumino thermic process

    e) Group 18 elements   -   Alumino in the absence of Air

14. **True or False:** (If false give the correct statement)

    i) An alloy is a heterogeneous mixture of metals.

    ii) Ionic radius increases across the period from left to right

15. **Assertion and Reason**:

    Assertion: Alkanes are saturated hydrocarbons.

    Reason: Hydrocarbons consist of covalent bonds.

    a) A and R are correct, R explains the A.   b) A is correct, R is wrong.

    c) A is wrong, R is correct.   d) A and R are correct, R doesn't explains A.

16. A is a silvery white metal. A combines with O_2 to form B at 800^oC, the alloy of A is used in making the aircraft. Find A and B

17. What is rust? Give the equation for formation of rust.

18. Name the important uses of ores of copper and any two uses.

19. Define metallurgy.

20. Classify the following compounds based on the pattern of carbon chain and give their structural formula: (i) Propane (ii) Benzene (iii) Cyclobutane (iv) Furan

21. What are the hydrocarbons?

22. Write the general formula of alkanes, alkenes, alkynes.

III. Answer any 3 questions: 3X4=12

23. The electronic configuration of metal A is 2, 8,18,1. The metal A when exposed to air and moisture forms B a green layered compound. A with con. H_2SO_4 forms C and D along with water. D is a gaseous compound. Find A,B,C and D.

24. a) Distinguish ore from a mineral 3 points.

    b) Explain smelting process.

25. How will you classify hydrocarbons?

26. Give any five of its characteristics of Homologous series.

27. Arrive at, systematically, the IUPAC name of the compound:

    $CH_3–CH_2–CH_2–OH$.

IV. 1.Answer all the questions, 2.Each question carries seven marks 3. Draw diagram wherever necessary.   2×7=14

28. a) Give the balanced chemical equation of the following reactions:

     (i) Neutralization of NaOH with ethanoic acid.

     (ii) Evolution of carbon dioxide by the action of ethanoic acid with $NaHCO_3$.

    (iii) Oxidation of ethanol by acidified potassium dichromate.

    (iv) Combustion of ethanol

(Or)

   b) How is ethanol manufactured from sugarcane?

30. a) Explain the process of smelting of Haematite ore in a Blast Furnace.

(Or)

   b) i) A is a reddish brown metal, which combines with O_2 at < 1370 K gives B, a black coloured compound. At a temperature > 1370 K, A gives C which is red in colour. Find A,B and C with reaction.

    ii) Uses of Aluminium.   iii) Define modern periodic law.

@@@@@@ALL THE BEST@@@@@@