MATHEMATICS

1) A man earns Rs.17,000 per month for first 7 months of a year and Rs.20,600 per month for the next 5 months. Find his average monthly income during the year.

2) In a triangle ABC, the internal bisectors of∠B and ∠C intersect at D then $\angle BDC - \frac{\angle A}{2}$=_____^{0}

3) If $z - \frac{1}{z}=4$ Find the value of $z^2 + \frac{1}{z^2}$and $z^4 + \frac{1}{z^4}$.

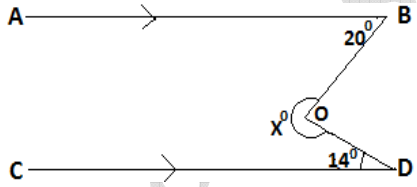
4) $(502)^2 + (504)^2 - (503)^2 - (505)^2$= _____
a. 2014 b.−2014 c. 2015 d. 2013 e. None of these

5) A shop promoting soap bars encourages you to 'buy three get another one free'. If you want 2014 bars, what is the least number you have to pay for?

6) In ΔABC, point D is on AC, AB=AD, and $\angle ABC - \angle ACB = 30^0$. Find ∠CBD.

7) Find the value of x when $\left[\left\{\left(\frac{5}{2}\right)^2\right\}^4\right]^{x+2} = \left[\left\{\left(\frac{2}{5}\right)^{-2}\right\}^{x-1}\right]^{-3}$

8) In the given figure AB∥CD. Find the value of X.



9) A father is 7 times as old as his son. Two years ago, the father was 13 times as old as his son. What are their present ages.

10) Solve : $\frac{5x-3}{2} - \frac{3x-2}{3} = \frac{2}{3}$.

11) If quotient = $3x^2 - 2x + 1$, remainder = $2x - 5$ and divisor = $x^2 + 2$, find the dividend as a polynomial in 'x'.

12) If (x+1) men will do a work in (x+1)days, find the number of days that (x+2) men can finish the same work.

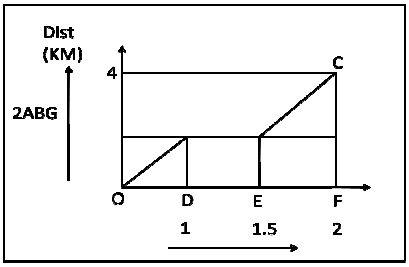
13) If a − b = 2 then find $a^2 + 2b - 4$ in terms of 'b'

14) 2012 is a special number. $20 - 12 = 8 = 2^3$; $20 + 12 = 32 = 2^5$. In the same way express 2408 as two different powers of 2.

15) The sum of three consecutive even numbers is 2016, find the numbers.

PHYSICS

1. The distance – time graph of a body is as shown in the figure. Find the speed of the body as it moves from



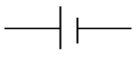
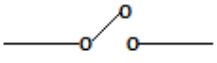
a) O to A b) A to B c) B to C

2. a) Mass per _____ is called density.
   b) S.I unit of density is _____.
   c) A piece of 240g lead has 20 cm^3volume. Then its density is _____ kg/m^3

3. a) Train moving on a straight rail track is _____ motion.
   b) A ball thrown upwards at an angle is _____ motion.
   c) A boy moving on a swing is _____ motion.

4. a) A simple pendulum takes 24 sec to complete 12 oscillations. What is the time period of the pendulum.
   b) The basic unit of speed is i) Km/min ii)cm/hr iii) m/s iv)m/s^2
   c) The distance between two points is 200Km. A train takes 2.5 hr to cover this distance. Calculate the speed of train in m/s.

5. a) Shorter line in the symbol of a cell represents its _____ terminal.
   b) An electromagnet _____ (attracts/repels) a piece of iron.
   c) When a room heater is switched on , room gets _____ (cooled/heated).

6. Write the names of the following symbols.
   a)  b)  c) 

7. a) Which of the following are bad conductors of electricity. i) Iron ii) Ebonite iii) Wood iv) Glass
   b) A fuse wire is an alloy of i) 60% of copper,40% of lead ii) 40% of copper,60% of lead
   iii) 60% of tin ,40% of lead iv) 60% of lead ,40% of tin
   c)Find the odd one of the following i)Ebonite ii) Plastic iii) Mercury

8. a) White light is composed of _____ colours. b) Light travels in _____ lines.
   c) A lens which is thick at middle and thin at edges is called _____ lens.

9. a) An image which can be caught on a screen is called _____ image.
   b) An image formed by a plane mirror is of _____ size as that of the object.
   c) Speed of light in vacuum is ___m/s

10. a) The nearest star to our earth is _____.
    b)Ground glass is a _____ body.
    c) The mirror used for rear view in automobiles is _____ mirror.

11. Match the following:
    i) Distance between object and centre of a lens a) Milky Way.

ii) Distance between pole and focus
iii) Eclipse formed on new moon day
iv) Distance between pole and centre of curvature
v) Eclipse formed on full moon day
vi) Our galaxy is

b) Radius of curvature
c) Lunar eclipse.
d) Object distance.
e) Focal length.
f) solar eclipse.

12. Write True or False for the following.

a) Primary colours are RED, BLUE &GREEN b) Kinetic energy equation is $\frac{1}{2}mv^2$

c) Energy possessed by a flying plane is only kinetic energy.

13. a) During day time, air becomes warm due to

i) Conduction ii) Convection iii) Radiation iv) Expansion

b) Fastest mode of transmission of heat is

i) Conduction ii) Convection iii) Radiation iv) Expansion

c) Of the following , for which liquid conduction is possible at room temperature.

i)Mercury ii) Benzene iii) Alcohol iv) Water

14. a) Lower standard fixed point of a thermometer is_____ b) 30^0C = _____Kelvin.

c) Alcohol thermometers can be used for measuring _____ temperatures.

15. a) The process due to which a liquid changes into gaseous state at some fixed temperature, with the absorption of heat energy is called

(i) Vapourisation (ii) Melting (iii) Fusion (iv) Condensation.

b) The process due to which a solid directly changes into gaseous state on heating and the gaseous state directly changes into solid state on cooling is called

(i)Condensation (ii) Evaporation (iii) Freezing (iv) Sublimation

c) The expansion produced in matter due to the absorption of heat energy is called _____.

16. a) Write the units of Intensity of light. b) 1 dyne = _____ newton. c) CGS units of Heat energy is _____.

17. a) The to and fro motion of a particle about its mean position is called _____.

b) Sound does not travel in _____.

c) The audible range of sound is from _____ Hz to _____Hz.

18. a)The loudness level of jet aeroplane is _____.

b)_____ is the instrument used for finding the depth of the sea.

c)Velocity of sound in air at 0^0C is _____.

19. a)A bus starting from rest, picks up a velocity of 20 m/s over a time of 40 sec. Find the acceleration of the bus.

b) A horse runs a distance of 1200m in 2 min 40sec. What is the speed of the horse?

c) If 'u' is initial velocity ,'v' is final velocity, 'a' is acceleration and 't' is time, write a relation between them.

20. a)A force of 4 N is acting on a body of mass 5g. Find the acceleration of the body.

b) Three cells each of emf 1.5V are connected in series. What is the effective e.m.f.

c) Sound waves in air are _____ waves.

CHEMISTRY

I **Define the following**

(1) Molecule (2) Compound (3) Humidity
(4) Atomicity (5) Basicity

II **Write the chemical formula of the following substances**

(1) Potassium chloride (2) Carbonic acid (3) Ferrous sulphide
(4) Ammonia (5) Sodium hydroxide

III **Calculate the total number of atoms present in the following**

(1) $(NH_4)_3PO_4$ (2) Na_2SO_4 (3) $Ca(OH)_2$
(4) $Mg(NO_3)_2$ (5) $KClO_3$

IV **Mention the name of acid / base present in the following**

(1) Curd (2) Glass cleaners (3) Orange
(4) Milk of magnesia (5) Apple

V **Translate the following chemical equations written in words into symbols and formulae, and balance them**

(1) Ammonia + Oxygen → Nitric oxide + Water
(2) Zinc sulphide + Oxygen → Zinc oxide + Sulphur dioxide
(3) Potassium chlorate → Potassium chloride + Oxygen
(4) Sodium nitrate → Sodium nitrite + Oxygen
(5) Potassium hydroxide + Sulphuric acid → Potassium sulphate + Water

VI **Complete the following**

(1) Iron + Oxygen (from air) + Water → _____
(2) Magnesium + Oxygen → _____
(3) Calcium oxide + Water → _____
(4) Copper sulphate + Iron → _____ + _____
(5) Zinc + Hydrochloric acid → _____ + _____

VII **Fill up the blanks**

(1) _____ is called dryice.
(2) The valency of Sodium is _____.
(3) The atomicity of ozone is _____.
(4) The formula of glucose is _____.
(5) The substances turn blue litmus paper to red are _____ in nature.

VIII **Match the following**

(1)	Bicarbonates of "Ca" & "Mg"	( )	(a)	To dissolve noble metals
(2)	$AgNO_3$	( )	(b)	As a preservative in pickles
(3)	Aquaregia	( )	(c)	In photography for developing films
(4)	Oxalic acid	( )	(d)	Cause temporary hardness to water
(5)	Sodium chloride	( )	(e)	To remove ink stains

IX **State whether the following statements are true (T) / false (F). Write only T / F duly indicating the question number**

(1) The process of applying a protective zinc coating to iron is called Galvanization.
(2) Magnesium chloride is a basic salt.
(3) Carbon dioxide is a greenhouse gas.
(4) Argon is used to provide an inert atmosphere in electric bulbs.
(5) One molecule of Phosphoric acid contains three atoms of Hydrogen, one atom of Phosphorus and three atoms of Oxygen.