XII (ENGLISH)

Answer the following questions in your own words

1. Under the apparent stillness there is life.

   justify with the reference to the poem keeping Quiet.

2. Students on ice is a program that prepares global citizens. Discuss.

3 Dreams are often far removed from reality. Discuss with reference to Lost Spring.

4. Explain hoe Derry and Mr. Lamb both are victims of physical impairment but their attitudes towards life is different.

5. Comment on the significance of the symbol of the car in the poem" A road side stand."

6. Explain " an endless fountain of immortal drink"

7. Contrast sophie's real world with her fantasies.

8. Why do you think Gandhi considered the Champaran episode to be a turning point in his life.

9. What picture of male chauvinism do we find in the poem on Jennifer's tiger.

10. The chapter enemy portrays the victory of humanity in a moment of crisis. Illustrate this fact through the actions taken by Dr sadao for the enemy Soldier.

11. You are a student of Apex Public School Bengaluru draft and invitation for parents of your school on card format on behalf of the principal for a musical evening to be held in your school.

12. Write a letter to the editor of a national daily urging people to use public transport and to have patience while driving.

13. In response to the advertisement for the vacancy of a swimming instructor in Saint Paul high school,Pune. Apply for the post with proper biodata.

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XII (MATHS)

1. Form a differential equations by eliminating arbitrary constants given in brackets against each.

(i) $y^2 = 4ax$ {a}

(ii) $y = ax^2+bx+c$ {a, b}

(iii) $x\,y = c^2$ {c}

(iv) $(x^2/a^2) + (y^2/b^2) = 1$ {a , b}

(v) $y = A\,e^{2x} + Be^{-5x}$ {A , B}

(vi) $y = (A + Bx)\,e^{3x}$ {A , B}

(vii) $y = e^{3x}\,\{C \cos 2\,x + D \sin 2\,x\}$ {C , D}

(viii) $y = e^{mx}$ {m}

(ix) $y = Ae^{2x} \cos (3\,x + B)$ {A, B}

2. Find the order and degree of the following differential equations.

(1) $(dy/dx) + y = x^2$

(2) $y' + y^2 = x$

(3) $y'' + 3\,(y')^2 + y^3$

(4) $d^2y/dx^2 + x = \sqrt{[y + (dy/dx)]}$

(5) $d^2y/dx^2 - y + (dy/dx + d^3y/dx^3)^{(3/2)} = 0$

(6) $y'' = (y - (y')^3)^{(2/3)}$

(7) $y' + (y'')^2 = (x + y'')^2$

(8) $(dy/dx)^2 + x = (dx/dy) + x^2$

3. Find the value of $\cos^{-1}\frac{1}{2} + 2\sin^{-1}\frac{1}{2}$.

4. A balloon which always remains spherical, has a variable diameter $\frac{3}{2}(2x + 1)$ Find the rate of change of its volume with respect to x.

5. Evaluate: $\int_0^{\sqrt{2}} \sqrt{2 - x^2}\,dx$

6. Evaluate: $\int \frac{(x+2)}{\sqrt{2x^2+2x-3}}\,dx$

Project Work

1. To verify that the relation R in the set of all lines in a plane, defined by R = {(l, m) : l ^ m} is symmetric but neither reflexive nor transitive.

2. To verify that the relation R in the set of all lines in a plane, defined by R = {(l, m) : l || m} is an equivalence relation.

XII (BIOLOGY)

1. Answer the following questions

i) Describe the events office for metro genesis with the help of schematic representation.

ii) STDs can be considered as self invited disease. Justify this statement.

iii) Write to advantages of lactational amenorrhea as a contraceptive method.

iv) discuss in detail the contribution of Morgan in the area of genetics.

v) A normal visioned women whose father is colour blind, marries a normal visioned man. What would be probability of her sons and daughters to be colour blind . Explain with the help of Pedigree chart.

vi) How did Harshey and Chase prove that DNA and not protein is the genetic material in bacteriophages?

vii) Describe the technique of DNA fingerprinting.

viii) how does the process of natural selection effect Hardy-Weinberg equilibrium?

ix) Why does an AIDS patient suffer from many other infectious diseases?

x) How are the large holes in Swiss cheese produced? Name the bacterium involved.

xi) Explain in proper sequence the various steps involved in rDNA technology.

xii) Draw a labelled diagram of sparged stirred tank bio reactor.

xiii) A patient is suffering from ADA deficiency. Can he be cured? How?

xiv) Why does the logistic growth model become S- shaped?

Activity - as directed in the class.

XII (I.P.)

1. What is the purpose of the Matplotlib library?
2. What are some of the major components of any graphs or plot?
4. Write short notes on different customisation options available with any plot.
5. What is the purpose of a legend?
6. Define Pandas visualisation.

7. Differences between Single row and Multiple row Functions.
8. What is open data? Name any two websites from which we can download open data.

Practical work--

9) Write 20 SQL Queries and 20 Python Programs on Dataframe, Series, Matplotlib in your practical copy only.

10) **Project work** :- Design the project on Corona cases survey report of your area.(Using Data visualisation)

XII (P.E)

1.Write down the procedure to conduct SAI Khelo India Fitness Test in school for 5 to 8 years old students.
2.Write down the procedure of Harvard fitness test.
3. What is a formula to find out Fitness Index score? And enlist equipment which can be used in Harvard fitness test.
4. How can BMR be assessed?
5. Discuss any three tests for testing the endurance and agility of senior citizens.
6. Differentiate between Slow Twitched Muscles and Fast Twitched Muscles.

Multiple Choice Questions-
1. Which is not an item of Rikli and Jones Test?
   a. 8 Foot Up and Go   b. Sit and Reach test
   c. 6 Minute Walk Test   d. Arms Curl Test

2. What is the weight of dumbbell for men in arm curl of Rikli and Jones Test?
  a. 5 pounds   b. 6 pounds
  c. 8 pounds   d. 10 pounds

3. What id BMR?
  i. Bodily Mass Index   ii. Body Mass Index
  iii. Boldy Mass Index   iv. Bodley Mass Index

4. The test duration for the Harvard fitness test is
  i. 3 minutes   ii. 4 minutes
  iii. 5 minutes   iv. 6 minutes

5.Partial curl up is to test .
  a. agility and speed   b. leg strength and endurance
  c. abdominal strength and endurance   d. upper body strength and endurance

6. Sit and reach test measures
  a. endurance   b. flexibility
  c. strength   d. speed

7.Johnson- Metheny Test battery does not consist of _____motor stunts

i. Front Roll   ii. Back Roll

iii. Side Roll.   iv. Jumping Full- Turns

8._____ system provide energy during 5000m race.

a. ATP CP system   b. Anaerobic System

c. Aerobic System   d. Endurance System

9. Slow twist fibres are of_____ colour.

a. Red   b. White

c. Black   d. Blue

10. Vo2 max is related to _____

a. Muscular system   b. Respiratory system

c. Cardiovascular system   d. Energy production system

XII (PHYSICS)

1. How does the angular separation of interference fringes change in Young's experiment, if the distance between the slits is increased?
2. How does the fringe width, in Young's double-slit experiment, change when the distance of separation between the slits and screen is doubled?
3. State two conditions required for obtaining co-herent sources. In Young's arrangement to produce interference pattern, show that dark and bright fringes appearing on the screen are equally spaced.
4. (i) Monochromatic light of frequency 6.0×10^{14} Hz is produced by a laser. The power emitted is 2.0×10^{-3} W. Estimate the number of photons emitted per second on an average by the source.
   (ii) Draw a plot showing the variation of photoelectric current versus the intensity of incident radiation on a given photosensitive surface.
5. State the conditions for the phenomenon of total internal reflection to occur.
6. A biconvex lens made of a transparent material of refractive index 1.25 is immersed in water of refractive index 1.33. Will the lens behave as a converging or a diverging lens?
7. Draw a ray diagram of an astronomical telescope in the normal adjustment position. State two drawbacks of this type of telescope.
8. Draw a ray diagram of a compound microscope. Derive the expression for its magnifying power.
9. A ray of light passing through an equilateral triangular glass prism from air undergoes minimum deviation when angle of incidence is $3/4^{th}$ of the angle of prism. Calculate the speed of light in the prism.
10. A biconvex lens has a focal length 2/3 times the radius of curvature of either surface. Calculate the refractive index of lens material.

11. The maximum kinetic energy of a photoelectron is 3 eV. What is its stopping potential?

12. Draw a plot showing the variation of de Broglie wavelength of electron as a function of its K.E.

13. The figure shows a plot of three curves a, b, c, showing the variation of photocurrent vs. collector plate potential for three different intensities I_1, I_2 and I_3 having frequencies V_1, v_2 and v_3 respectively incident on a photosensitive surface.
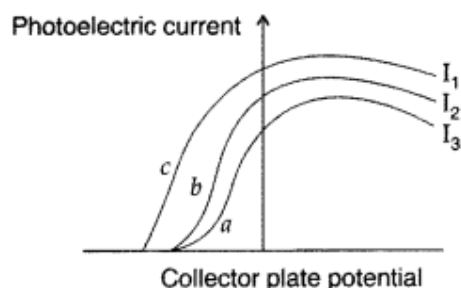
14. The given graph shows the variation of photo-electric current (I) versus applied voltage (V) for two different photosensitive materials and for two different intensities of the incident radiation. Identify the pairs of curves that correspond to different materials but same intensity of incident radiation. (Delhi 2013)
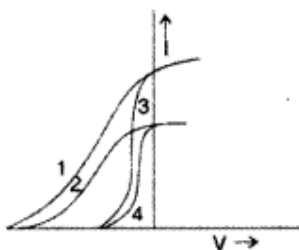
15. Show on a plot the nature of variation of photoelectric current with the intensity of radiation incident on a photosensitive surface.

XII(CHEMISTRY)

Q1. Classify the following compounds as primary, secondary and tertiary halides.

(i) 1-Bromobut-2-ene

(ii) 4-Bromopent-2-ene

(iiii) 2-Bromo-2-methylpropane.

2.Write the structures and names of the compounds formed when compound 'A' with the molecular formula C_7H_8 is treated with Cl_2 in the presence of $FeCl_3$.

3.Illustrate the following reactions giving a chemical equation for each :
(i) Kolbe's reaction
(ii) Williamsons synthesis of an ether

(iii)Rosenmund reduction

(iv) Stephen reaction .

(V) Reimer Tieman reaction

4.How are the following conversions carried out?
 (i) Propene to propan-2-ol
 (ii) Ethylmagnesium chloride to propan-1-ol.

5.Explain the following observation:
 (i) The boiling point of ethanol is higher than that of methoxymethane.
 (ii) Phenol is more acidic than ethanol.
 (iii) o- and p-nitrophenols are more acidic than phenol.

6.Explain the mechanism of the following reactions :

(i) Addition of Grignard's reagent to the carbonyl group of a compound forming an adduct followed by hydrolysis.

(ii) Acid catalysed dehydration of an alcohol forming an alkene.

(iii) Acid catalysed hydration of an alkene forming an alcohol.
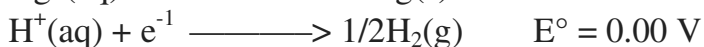
7.Describe the shape and magnetic behaviour of following complexes :

(i) $[CO(NH_3)_6]^{3+}$

(ii) $[Ni(CN)_4]^{2-}$ (At. No. Co = 27, Ni = 28).

8.Fe(H2O)6]3+ is strongly paramagnetic whereas [Fe(CN)6]3- is weakly paramagnetic. Explain. (At. No. Fe = 26) .

9.Following reactions occur at cathode during the electrolysis of aqueous silver chloride solution:
$Ag^+(aq) + e^{-1}$ ————> $Ag(s)$ E $E° = +0.80$ V
$H^+(aq) + e^{-1}$ ————> $1/2H_2(g)$ $E° = 0.00$ V
On the basis of their standard reduction electrode potential (E°) values, which reaction is feasible at the cathode and why?
(b) Define limiting molar conductivity. Why conductivity of an electrolyte solution decreases with the decrease in concentration?

10.A zinc rod is dipped in 0.1 M solution of $ZnSO_4$. The salt is 95% dissociated at this dilution at 298 K. Calculate the electrode potential.
$[E°_{Zn}^{2+} /Zn = -0.76$ V] .
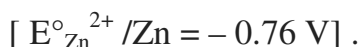
11.How would you account for the following :
(i) Many of the transition elements and their compounds can act as good catalysts.

(ii) The metallic radii of the third (5d) series of transition elements are virtually the same as those of the corresponding members of the second series.
(iii) There is a greater range of oxidation states among the actinoids than among the lanthanoids.

12.(a) Explain the following phenomena with the help of Henry's law.

   (i)   Painful condition known as bends.

   (ii)   Feeling of weakness and discomfort in breathing at high altitude.

   (iii) Why does soda water bottle kept at room temperature fizzes on opening?

13.(a) A reaction is second order in A and first order in B.
(i) Write the differential rate equation,
(ii) How is the rate affected on increasing the concentration of A three times?
(iii) How is the rate affected when the concentrations of both A and B are doubled?
(b) A first order reaction takes 40 minutes for 30% decomposition. Calculate $t_{1/2}$ for this reaction. (Given log 1.428 = 0.1548) .

14.. Arrange the following compounds in increasing order of their boiling points:

CH_3CHO, CH_3CH_2OH, CH_3OCH_3, $CH_3CH_2CH_3$

15. Write the structures of the following compounds.

(i) α-Methoxypropionaldehyde

(ii) 3-Hydroxybutanal

(iii) 2-Hydroxycyclopentane carbaldehyde

(iv) 4-Oxopentanal

(v) Di-sec-butyl ketone

(vi) 4-Fluoroacetophenone

_____**x**_____