KENDRIYA VIDYALAYA VIJAYANARAYANAM
HOLIDAY ASSIGNMENT – SUMMER VACATION- 2020

ENGLISH CORE

(ALL ANSWERS MUST BE SUBMITTED IN NOTEBOOK ONLY)

PART- 1

NOTEMAKING (AS PER CBSE PATTERN) FOR THE FOLLOWING CHAPTERS

The Last Lesson

Lost Spring

Deep Water

PART -2

COLLECT FACTS ABOUT THE FOLLOWING TOPICS

Banning mobile phones in School, boon or bane

Ailing planet- Earth

Cleanliness drives

BIOLOGICALWEAPONS

Yoga

PART -3

VOCABULARY BUILDING

Collect minimum 10 words which are not familiar to you so far and write their meanings which can be currently used for writing section answers- daily basis

HOLIDAY HOMEWORK IN PHYSICS

1. Electric charges-List out the Properties of electric charges, Uses of earthing in electrical

   circuits,different methods of charging conductors and explain the working of a Gold leaf

   electroscope.

2. Contributions of the French physicist Charles Augustin de Coulomb, Coulomb's law in electrostatics,

   Establish the relationship between Coulomb's law and Newton's third law.Prove that Coulomb's law

   and Newton's law for gravitational force has inverse square law dependence.

3. Derive a relation for the force between multiple charges explaining parallelogram law of vector

   addition,   Coulomb's law and superposition principle.

4. Define electric field, explain its physical significance and derive an expression for electric field due to

   a system of charges and torque on an electric dipole.

5..Explain unification of electricity and magnetism, stressing the contribution of the

   physicists Michael Faraday' Andre Marie Ampere, James Clark Maxwell and Dutch physicist Lorentz

6.. Explain Gauss' law in electrostatics and its applications. Explain rotational and translational symmetry of
charged surfaces.

7. Define electrostatic potential due to a point charge, an electric dipole and a system of charges.

.Explain with suitable figures equipotential surfaces.What are the contributions of the physicist

   Alessandro Volta

8.What are dielectrics? Define dielectric constant. Explain polarisation of dielectrics with suitable

figures.

HOLIDAY HOME WORK FOR CLASS XII

BIOLOGY

I. Answer the following(Do this in the HW book only)

1.Define clone.

2.Differentiate the following

 a) Parthenocarpy&parthenogenesis

b)Menstrual cycle & oestrus cycle.

c)The method of budding in Hydra & in Spongilla.

3.What is the importance of Apomixis?

4.What is seed dormancy? Give any two advantages of seed dormancy?

5.Why is autogamy discouraged in plants? Mention four adaptations seen in plants to ensure xenogamy.

6.Name two plants which are

a)wind pollinated

b)water pollinated

c)insect pollinated

7.Explain why the first half of the menstrual cycle is called the proliferative phase as well as the follicular phase.

8.Name three male accessory genital glands.

9.About 20% of human ejaculate is the secretion of one of the accessory glands .Name it and write important constituent of it.

10.What would happen if the testes are retained inside the abdomen and not in scrotum?

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Summary Break Home Work (2020-21)

Class-XII   Subject- Computer Science

Write the following programs in class notebook and practice the same using Python IDLE.

Basic Programs:

1. Write a program to compute simple interest and compound interest.
2. Python program to print all Prime numbers in an Interval.
3. Python Program for Fibonacci numbers.
4. Program to print ASCII Value of a character.
5. Python Program for How to check if a given number is Fibonacci number?
6. Write a program to obtain x, y, z from user and calculate expression : $3x^4 + 5y^3 + 8z + 2$.

List Programs:

1. Write a program that inputs two lists and creates a third, that contains all elements of the first followed by all the elements of the second list.
2. Ask the user to enter a list of strings. Create a new list that consists of those strings with their first characters removed.
3. Write a program that rotates the elements of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index.
4. Python | Ways to find length of list.
5. Python | Ways to check if element exists in list.
6. Different ways to clear a list in Python.
7. Python | Reversing a List.
8. Python | Cloning or Copying a list.
9. Python | Count occurrences of an element in a list.
10. Python program to find smallest number in a list.

String Programs:

1. Python program to check if a string is palindrome or not.
2. Reverse words in a given String in Python.
3. Ways to remove i^{th} character from string in Python.
4. Python | Check if a Substring is Present in a Given String.
5. Find length of a string in python (4 ways).
6. Python | Program to accept the strings which contains all vowels.
7. Python | Count the Number of matching characters in a pair of string.
8. Python program to count number of vowels using sets in given string.
9. Remove all duplicates from a given string in Python.
10. Write a program that should prompt the user to type some sentence(s) followed by "enter". It should then print the original sentence(s) and the following statistics relating to the sentence(s) :

- Number of words
- Number of characters (including white-space and punctuation)
- Percentage of characters that are alpha numeric.

Dictionary Programs:

1. Given the dictionary x = {'k1' : 'v1' , 'k2' : 'v2', 'k3' : 'v3'}, create a dictionary with the opposite mapping, i.e., write a program to create the dictionary as:

   Inverted_x = {'v1' : 'k1' , 'v2' : 'k2', 'v3' : 'k3'}

2. Python | Sort Python Dictionaries by Key or Value.
3. Python dictionary with keys having multiple inputs.
4. Python program to find the sum of all items in a dictionary.
5. Python | Ways to remove a key from dictionary.
6. Python | Merging two Dictionaries.

Tuple Programs:

1. Write a program to input any values for two tuples. Print, interchange and then compare them.
2. Write a program to accept values from a user in a tuple. Add a tuple to it and display its elements one by one. Also display its maximum and minimum value.

Functions:

1. Write a Python program that accepts a hyphen-separated sequence of words as input and prints the words in hyphen-separated sequence after sorting them alphabetically.

   Sample items : green-red-yellow-black-white

   Expected result : black-green-red-white-yellow

2. Write a program to display first four multiples of a number using recursion.

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SUMMER BREAK HOME WORK (2020-21)

CLASS-XII
SUBJECT- CHEMISTRY

1) Write the no.of atoms of a) bcc   b) fcc   c) simple cubic   d) end-centered
2) Write the differences between Schottky defect and Frenkel defect.
3) Explain n-type and p-type conductions with suitable examples.
4) Derive the packing efficiency of bcc.
5) What are i) Ferromagnetic   ii) Ferrimagnetic   iii)Antiferromagnetic with

Suitable examples.

6) Solve the problem of 1.16 of page no. 31 of Text book.

7) Solve the problem of 1.21 of page no. 32 of Text book.

8) Solve the problem of 1.25 of page no. 32 of Text book.

9) Define the terms i) Molarity   ii) molality   iii) mole fraction

10) State i) Raoult's law of solution of two liquids

   ii) Raoult's law of solution containing non-valatile solute

11) Silver crystallises with face-centred cubic unit cell. Each side of this unit cell has a length of 409 pm. What is the radius of silver atom? Assume the atoms just touch each other on the diagonal across the face of the unit cell

12) An element with density 2.8 g cm–3 forms af.c.c. unit cell with edge length 4 × 10–8 cm. Calculatethe molar mass of the element.(Given: NA = 6.022 × 10^{23} mol–1)

13) Copper crystallises with face centred cubic unit cell. If the radius of copper atom is 127.8 pm,calculate the density of copper metal.(Atomic mass of Cu = 63.55 u and Avogadro's number NA = 6.02 × 1023 mol–1)

14) Iron has a body centred cubic unit cell with a cell dimension of 286.65 pm. The density of iron is 7.87 g cm–3. Use this

information to calculate Avogadro's number. (At. mass of Fe = 56.0 u)

   15).Explain ideal and non ideal solution with suitable example

Graph of Functions.

1. Draw the graph of the following functions in graph sheet.

(i) $y = |x|$

(ii) $y = |x+1|$

(iii) $y = |x-1|$

(iv) $y = |x| + 1$

(v) $y = |x| - 1$

2. Draw the two circles in the same graph.

(i) $x^2 + y^2 = 1$, $(x-1)^2 + y^2 = 1$

(ii) $x^2 + y^2 = 4$, $(x-2)^2 + y^2 = 4$

(iii) $x^2 + y^2 = 9$, $x^2 + (y-3)^2 = 9$

(iv) $x^2 + y^2 = 16$, $x^2 + (y-4)^2 = 16$

3. Draw the parabolas :

(i) $y^2 = 4x$

(ii) $y^2 = -4x$

(iii) $x^2 = 4y$

(iv) $x^2 = -4y$

(v) $y^2 = x+1$

(vi) $y = x^2 + 1$

(vii) $y^2 = x-2$

(viii) $y = x^2 - 1$

1	Prove that the relation R in, the set of all real numbers, defined as $R = \{(a, b) : a \leq b^2\}$ is neither reflexive nor transitive.
2	Show by examples that the relation R in, defined by $R = \{(a, b): a \leq b^3\}$ is neither reflexive nor transitive.

2. Equivalence relation:

1	Let N denote the set of all natural numbers and R be the relation on NXN defined by $(a, b)R(c, d)$ if $ad(b + c) = bc(a + d)$. Show that R is an equivalence relation.
2	Show that the relation R in the set $A=\{1,2,3,4,5\}$ given by $R=\{(a,b): |a-b|$ is divisible by 2$\}$ is an equivalence relation. Show that all the elements of $\{1,3,5\}$ are related to each other and all the elements of $\{2,4\}$ are related to each other, but no element of $\{1,3,5\}$ is related to any element of $\{2,4\}$.
3	Let T be the set of all triangles in a plane with R as relation in T given by T_1 is related T_2 if T_1 is similar to T_2. Show that R is an equivalence relation.

3. Functions:

1	Let f: N→N be a function defined as $f(x) = 9x^2 + 6x - 5$. Show that f: N→S(where S is range of f) is invertible. Find the inverse of f and hence find $f^{-1}(43)$ and $f^{-1}(163)$, $f^{-1}(10)$ and find y if $f^{-1}(y) = \frac{4}{3}$
2	Let f: N→N be a function defined as $f(x) = 4x^2 + 12x + 15$. Show that f: N→S (Where S is range of f) is invertible. Find the inverse of f and hence find $f^{-1}(31)$ and $f^{-1}(87)$.
3	Show that the function f in $A=R-\left\{\frac{2}{3}\right\}$ defined as If $f(x) = \frac{4x+3}{6x-4}$ is one to one and onto. Hence find f^{-1}.
4	Let $A = R - \left\{\frac{2}{3}\right\}$ and $B = R - \left\{\frac{2}{3}\right\}$. If f: A→ B and $f(x) = \frac{2x-1}{3x-2}$, then prove that the function f is one-one and onto.
5	Let f: N→N be defined by $f(n) = \begin{cases} \frac{n+1}{2} & \text{, if n is odd} \\ \frac{n}{2} & \text{, if n is even} \end{cases}$ for all $n \in N$. Find whether the function f is bijective.
6	Let $f: W \times W$ be defined as $f(n) = \begin{cases} n - 1 & if \quad n\ is\ odd \\ n + 1 & if \quad n\ is\ even \end{cases}$. Show that f is invertible and find the inverse of f. Here, W is the set of all whole numbers.
7	Let $A = \{-1, 0, 1, 2\}$, $B = \{-4, -2, 0, 2\}$ and f, g: A→ B be functions defined by $f(x) = x^2-x$, $x \in A$ and $g(x) = 2\left|x - \frac{1}{2}\right| - 1$, $x \in A$. Find gof (x) and hence show that $f=g=fog = gof$.

Inverse Trigometry functions

I. Evaluate:

1). $\tan^{-1}\sqrt{3} - \cot^{-1}(-\sqrt{3})$

2). $3\sin^{-1}x = \sin^{-1}(3x - 4x^3)$

3). $\tan^{-1}\sqrt{3} - \sec^{-1}(-2)$

4). $\tan^{-1}(1) + \cos^{-1}(-\frac{1}{2})$

5). $\tan(2\tan^{-1}\frac{1}{5})$

6). $\tan^{-1}\left[2\sin\left(2\cos^{-1}\frac{\sqrt{3}}{2}\right)\right]$

7). $\tan^{-1}(\tan 9\frac{\pi}{8})$

8). $\cos^{-1}\left[\frac{1-y^2}{1+y^2}\right]$

9). $\sin^{-1}\left[\frac{2x}{1+x^2}\right]$

10). $\tan\frac{1}{2}\left[\sin^{-1}\frac{2x}{1+x^2} + \cos^{-1}\frac{1-y^2}{1+y^2}\right]$

II. Prove that:

1. $\cot^{-1}\left[\frac{\sqrt{1+\sin x} + \sqrt{1-\sin x}}{\sqrt{1+\sin x} - \sqrt{1-\sin x}}\right] = \frac{x}{2}$

2. $\tan^{-1}\left[\frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}}\right] = \frac{\pi}{4} - \frac{1}{2}\cos^{-1}x$

3. $\cot^{-1}\left(\frac{xy+1}{x-y}\right) + \cot^{-1}\left(\frac{yz+1}{y-z}\right) + \cot^{-1}\left(\frac{zx+1}{z-x}\right) = 0$

4. $\sin^{-1}\left(\frac{5}{13}\right) + \cos^{-1}\left(\frac{3}{5}\right) = \sin^{-1}\frac{63}{65}$

5. $\cos^{-1}\left(\frac{4}{5}\right) + \cos^{-1}\left(\frac{12}{13}\right) = \cos^{-1}\left(\frac{33}{65}\right)$

6. $\tan^{-1}\left(\frac{1}{1+1\cdot2}\right) + \tan^{-1}\left(\frac{1}{1+2\cdot3}\right) + \ldots + \tan^{-1}\left(\frac{1}{1+n(n+1)}\right) = \tan^{-1}6$

III. Solve for x:

1. $\cos(\tan^{-1}x) = \sin\left(\cot^{-1}\frac{3}{4}\right)$

2. $\sin^{-1}\left(\frac{3}{x}\right) + \sin^{-1}\left(\frac{4}{x}\right) = \frac{\pi}{2}$

3. $\tan^{-1}x - \tan^{-1}\frac{1}{x} = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$

1. दिन जल्दी-जल्दी ढलता है में पक्षी तो लौटने को विकल है, पर कवि में उत्साह नहीं है। ऐसा क्यों?

2. बच्चे किस बात की आशा में नीड़ों से झाँक रहे होंगे? (एक गीत)

3. नादान वहीं है, हाय, जहाँ पर दाना .... **आत्मपरिचय** कविता में बच्चन के इस कथन का कारण और आशय बताइए।

4. **निम्नलिखित काव्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए-**
   मैं स्नेह-सुरा का पान किया करता हूँ,
   मैं कभी न जग का ध्यान किया करता हूँ,
   जग पूछ रहा उनको, जो जग की गाते,
   मैं अपने मन का गान किया करता हूँ!

   i. रूपक अलंकार का सौंदर्य स्पष्ट कीजिए।
   ii. अनुप्रास के दो उदाहरण चुनकर लिखिए।

5. **निम्नलिखित काव्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए-**
   मैं स्नेह-सुरा का पान किया करता हूँ,
   मैं कभी ने जग का ध्यान किया करता हूँ,
   जग पूछ रहा उनको, जो जग की गाते,
   मैं अपने मन का गान किया करता हूँ!
   मैं निज उर के उद्गार लिए फिरता हूँ,
   मैं निज उर के उपहार लिए फिरता हूँ।
   है यह अपूर्ण संसार न मुझको भाता
   मैं स्वप्नों का संसार लिए फिरता हूँ।

   i. कवि ने स्नेह को सुरा क्यों कहा है? संसार के प्रति उसके नकारात्मक दृष्टिकोण का क्या कारण है?
   ii. संसार किनकी महत्व देता हैं? कवि को वह महत्व क्यों नहीं दिया जाता?
   iii. उद्गार और उपहार कवि को क्यों प्रिय हैं?

6. **निम्नलिखित काव्यांश को पढ़कर पूछे गए प्रश्नों के उत्तर लिखिए-**
   हो जाए न पथ मे रात कहीं
   मंजिल भी तो है दूर नहीं-

यह सोच थका दिन का पंथी भी
जल्दी-जल्दी चलता है।
दिन जल्दी-जल्दी ढलता है।
बच्चे प्रत्याशा में होंगे,
नीड़ों से झाँक रहे होंगे-
यह ध्यान पुरो मे चिड़ियो के
भरता कितनी चंचलता है!
दिन जल्दी-जल्दी ढलता हैं!
मुझसे मिलने को कौन विकल?
मैं होऊँ किसके हित चंचल?
यह प्रश्न शिथिल करता पद को,
भरता उर में विह्वलता है!
दिन जल्दी-जल्दी ढलता है!

i. दिन का पंथी जल्दी-जल्दी चलता है, क्यों?
ii. चिड़ियों के परों में चंचलता किस कारण आती है?
iii. कवि की दशा 'दिन के पंथी' और 'चिड़ियों' से भिन्न क्यों है?