Holiday Homework
Class: XII
Subject: Mathematics

1. Show that the relation R in the set of integers given by R={(a,b): 4 divides a-b} is an equivalence relation. Find the set of all elements related to 0.
2. Show that the relation R defined in the set A of all triangles as R={(T_1,T_2): T_1 is similar to T_2) is an equivalence relation. Consider three right angled triangles T_1 with sides 3, 4, 5, T_2 with sides 7, 24, 25 and T_3 with sides 12, 16, 20 Which triangles among T_1 ,T_2 and T_3 are related?

3. Show that the intersection of two equivalence relations in a set is again an equivalence relation in the set.

4. Let R be the relation defined in the set A={1, 2, 3, 4, 5, 6, 7, 8, 9) by R={(a,b): both a and b are either odd or even}. Show that R is an equivalence relation. Further show that all the elements of the subset {1,3, 5, 7, 9} are related to one another and all the elements of the subset {2, 4, 6, 8} are related to one another, but no element of the subset {1, 3, 5, 7, 9} is related to any element of the subset {2, 4, 6, 8}.
5. Show that the function f: R->R defined by $f(x)= 4x^3+7$, for all x belongs to R is bijective.
6. Show the function f :N->N defined by

f(x)={x+1, if x is odd
x-1 if x is even

is bijective.

7. Show that the function f: R->R defined by $f(x)=2x^2$, is neither one-one nor onto.

8. Let X be the set of real numbers excluding 1. Show that the function f:X->X defined by f(x)=(x+1)/(x-1) is bijective.

SUMMER HOLIDAYS HOME WORK - XII BIOLOGY

(I) Study at least two flower which are pollinated by Insects and Wind in your locality and record your observation in the table given below:

S.No.	Local Name	Scientific Name	Pollinated by	Adaptive Features

(II) Make a list of fruits eaten by you during this summer, differentiate them as true fruits & False fruits also find out the type of seed they possess (monocot / Dicot) and record your observations.

Fruits eaten by you	True fruit	False fruit	Type of seed

(III) Prepare a Concept Map on the following Topics :

(a) Pre-fertilization events in flowering plants (b) Post fertilization events in flowering plants
(c) Gametogenesis in Human

(IV) Competency Based questions:

Q.1 Apomixis is a mode of reproduction which does not involve formation of zygote through gametic fusion. In plants, apomixis commonly mimics sexual reproduction but produces seeds without fertilisation. There are several methods of apomictic development in seeds. The two common ones are recurrent agamospermy and adventive embryony.

(i) Apomixis is a type of reproduction in plants in which
(a) fertilisation does not take place (b) male nucleus takes part in fertilisation
(c) pollen fusion takes place (d) generative nucleus takes part in fertilisation.

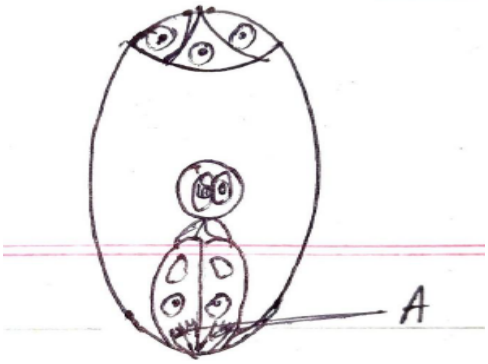
(ii) Which of the following statements is incorrect regarding recurrent agamospermy?
(a) It is the formation of seed that has an embryo formed without meiosis and syngamy.
(b) All the cells of the embryo sac are diploid. (c) An embryo develops directly from a diploid cell other than egg like that of nucleus and integument. (d) None of these

(iii) Adventive embryony is found in
(a) Citrus (b) Opuntia (c) Apple (d) Both (a) and (b).

(iv) Formation of embryo directly from diploid egg without fertilisation is called
(a) Apospory (b) diplospory (c) Polyembryony (d) diploid parthenogenesis.

(v) If any somatic cell of sporophyte produces gametophyte without reduction division, it is called
(a) parthenogenesis (b) apogamy (c) apospory (d) amphimixis.

Q.2 Study the given figure of the embryo sac in angiosperms and answer the questions that follows:

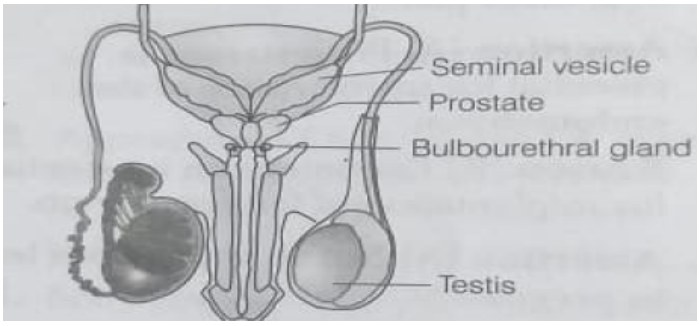


(i) Embryo sac is also called
(a) female gamete (b) Synergids (c) female gametophyte (d) Egg of angiosperm

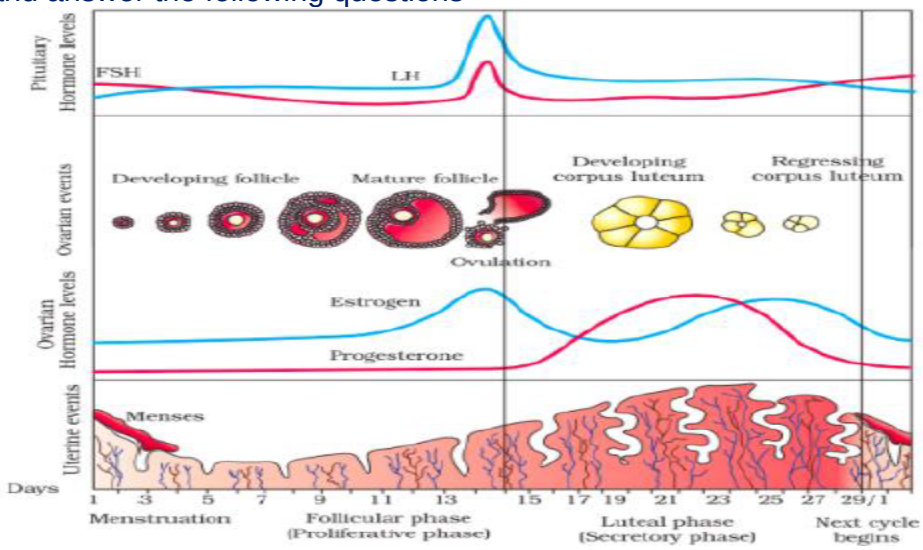
(ii) The arrangement of the nuclei in a normal embryo sac in the dicot
(a) 3+2+3 (b) 2+3+3 (c) 3+3+2 (d) 2+4+2

(iii) Antipodal nuclei in a typical angiosperm embryo sac which found towards
(a) micropylar region (b) in the middle region (c) Chalazal end (d) On the lateral sides

(iv) What does the labelled part A do at the entrance into the ovule?
(a) It brings about the opening of the pollen tube. (b) It guides the pollen tube from a synergid to egg.
(c) It helps in the entry of the pollen tube into a synergid.
(d) It prevents entry of more than one pollen tube into the embryo sac.
Q.3 Study the given figure of human male reproductive system and answer the questions that follow.



(i) Prostate gland is a:
a. Digestive gland b. Sperm producing gland
c. Semen producing accessory gland of male d. hormone producing gland of the ovary
(ii) Bulbourethral gland is also known as:
a. Prostate gland b. Cowper's gland c. Perineal gland d. Salivary gland
45 Seminal vesicles are present between.
a. Prostate gland and urethra b. Urinary bladder and rectum
c. Above testis d. Near epididymis
46 How many compartments are there in each human testis?
a. 250 b. 300 c. 350 d. 400
Q.4 Study the various events during a menstrual cycle in human female in the given figure and answer the following questions



(i) Graaffian follicle is formed from:
A. Primary follicle B. Secondary follicle
C. Tertiary follicle D. None
(ii) Luteal phase during a menstrual cycle is also known as:

A) Proliferative phase B) Secretory phase C. Reductive phase D. Regenerative phase

(iii) Which hormone secrete maximum during luteal phase?
A. LH B. FSH C. Androgen D. Progesterone

(iv) Function of corpus luteum is to secrete:
A) Progesterone B) Estrogen C) Testosterone D) hCG

(v) In the 28 days human ovarian cycle, the ovulation takes place typically on
A. Day 1 of the cycle B. Day 14 of the cycle C. Day 5 of the cycle D. Day 28 of the cycle

Summer Vacation 2022-23 Home work

Class: XII-A

Subject: Computer Science

Designed by: Rupendra R Meshram, PGT Computer Science

ACTIVITY 1 (PROGRAMMING)

Develop following Python programs using laptop/desktop/mobile phone and write the code and **paste print out of output in notebook.**

NOTE: In each program, first 2 lines of code should be as given below-

```
print("Name: " , <Your Name>)
print("RollNo: " , <Your RollNo>)
```

PROGRAMS

1. Write a program to print natural numbers from 1 to 20 using following rules-
   - If a number is divisible by 3 print '***' ,
   - If number is divisible by 4, print '$$$$'
   - Otherwise print the number.

   1
   2
   ***
   $$$$
   5
   ***
   7
   $$$$
   ***
   10
   11
   ***
   13
   14
   ***
   $$$$

17
***
19
$$$$

2. Write a program to print natural numbers from 1 to 20 using following rules-
   - If a number is divisible by 3 print the equal number of stars,
   - Otherwise print the number.
   - Expected output should be

   1
   2
   ***
   4
   5
   ******
   And so on…
3. Write a program to get 2 lists L1 and L2 from user and create a new list L3 by adding respective (1^{st} element of L1 should be added to 1^{st} element of L2 and so on) elements of L1 and L2.
   For example
   If L1 = [2,3,5,8]
   L2 = [1,3,2,2]
   Then L3 should be – [3,6,7,10]
4. Write a program in python to display only the even elements from a given list of numbers.
   For example – If given list is L = [1,2,3,4,5]
   program should display - 2,4
5. Enter a List L of numbers and N is any number. Write a code which adds number N into each element of list L.
   For example if MYLIST = [2,5,3,1]
   and If N=3 then add number 3 into each element of MYLIST.
   So now MYLIST should be [5,8,6,4]
6. Suppose L is a list of numbers and N is any number. Then program should delete all occurrences of number N from list L.
   For example if MYLIST = [2,5,3,1,3,4,2,3]
   if N= 3 then it should delete all occurrences of number 3 from MYLIST.
   So now MYLIST should be [2,5,1,4,2]
7. Write a program in python to calculate sum of all elements of a given list of numbers.
   For example-
   if given list is L = [1,3,5,7]
   Then the program should calculate sum of all elements of L and
   output should be – 16
8. Write a program in python to get a string from user and count the number of words in it.
9. Write a Python program to get a string from user and calculate sum of digits in the entered string, if there is no digit, print ZERO.

For example if entered string is – "KVG23", output should be 5 (i.e. 2 + 3)
if entered string is – "KVG", output should be ZERO

10. Write a Python program to remove duplicate characters of a given string.
11. Write a Python program to find the second most repeated word in a given string.
12. Write a Python program to change a given string to a new string where the first and last chars have been exchanged.
    So if entered string is – "ABBCCD" , output should be "DBBCCA"
13. Write a program in Python to get password from user and check validity of a password entered by user. A valid password
    - must contain at least 8 characters
    - must contain at least one uppercase and one lowercase letter
    - must contain at least one special character

    If password is not valid, It should print "INVALID Password"
14. Write a Python program to check whether a given string is palindrome or not.

ACTIVITY 2

1. Write all keywordsin notebook and try to memorize them
2. Write all operators of Python and one example of each operator
   for example-

   i. + (Addition) 5 + 6 = 11
   ii. – (Subtraction) 7 – 3 = 4
3. Write and explain all List functions (i.e. append(), extend() etc). Take a list L and use each function on this list.
4. Write and explain all String functions (i.e. capitalize(), isupper() etc). Take a string S and use each function on this string.
5. Write and explain all dictionary functions (i.e. keys(), values() etc). Take a dictionary D and use each function on this dictionary.

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SUMMER VACATION HOMEWORK

SUBJECT: ENGLISH CLASS: XII (2022-23)

INSTRUCTIONS •

This assignment is to be attempted on an everyday basis and completed by June 15,2022

I. Revise the Writing Skills topics done till now.
II. Download a Dictionary App and note down in your file date wise:
    • Word of the Day
    • Meaning of the word
    • Usage in a sentence
    **This should make a list of around 30 words. Kindly mention the app.
III. Download an English newspaper App, e.g., Hindu, TOI, Indian Express etc. and read on a daily basis. Make the optimum use of the English newspaper App.
    I. Note down five news headlines from each day, datewise.

COMPREHENSION TASK:

(A) Read and Solve the Comprehension passages provided here:
PASSAGE: 1 Scientists Set Forth Proposals to Tame Climate 1. In 20 years, global temperatures will rise by 0.2-0.4 degree centigrade, they say. Scientists from 12 academies round the world have met in Tokyo to issue a statement on the inevitable long-term rise in temperature. Their forecast is that in the next 20 years, global temperatures will rise by 0.2-0.4 degree centigrade. The consequences of global warming will be felt worldwide. Polar icecaps will continue to melt and the world's oceans will erode coastlines still further.

2. The academics assessed the scientific aspects of global climate change. This will be a G-8 plus 5 summit involving China, India, South Africa, Brazil and Mexico. Representatives of these five nations participated in drafting the statement on climate change.
3. The decision to expand the summit format was logical as China now ranks second after the United States in industrial emissions, and the other four countries are also

notorious for their high pollution levels. The scientists called on world leaders to minimise the threat of climate change, stressed the need for urgent action to clarify the causes of this process and set forth proposals to “tame” the climate.

4. YuryIzrael, director of the Institute of Global Climate and Ecology at the Russian Academy of Sciences, who co-authored the statement, told RIA Novosti that the document mostly aimed at enhancing climate-stabilisation measures, outlined ways of adapting to the situation and stipulated a transfer to a lowcarbon society.

5. He said less carbon carbon-intensive energy sources and the energy-preservation principle had to be introduced. Japan, which will hold the G-8 summit, has invented a production process making it possible to cut toxic emissions by 70 percent by 2050. However, Mr. Izrael said this would not solve the climate change problem even if all industrial giants followed suit. “To stabilise the climate, we must reduce toxic emissions down to the Earth’s natural absorbing capacity. The planet can now absorbless than 50% of toxic emissions,” he said.

6. “This means that we cannot achieve any short-term results in this sphere.” Mr. Izrael said direct efforts to fight greenhouse emissions held little promise. Scientists have not yet assessed the impact of greenhouse gases on the global climate. At any rate, state-of-the-art industrial technologies are not the only way to fight global warming. This costly programme will take several hundred years and many millions of dollars to implement. The G-8 plus 5 academic meeting also focussed on other factors influencing global climate change.

7. “We must have different ‘weapons’ for fighting climate change and stabilising the climate, and have to use the most effective ones,” Mr. Izrael said. For instance, geo-engineering technologies can alter the Earth’s albedo, or reflecting power. According to scientists, young and old trees have different albedo levels. Young trees actively detonate carbon needed for their growth and development, while older trees either absorb little or no carbon at all. Consequently, new forests must be planted regularly to preserve a stable climate. Moreover, we must care for old forests, protecting them from wildfires and implementing well-thought-out tree felling programmes.

8. The Tokyo statement said it was necessary to intensify biological processes in the world’s oceans. For instance, plankton, the perennial inhabitant of the seven seas, requires huge amounts of carbon dioxide for further growth and should therefore be planted en masse with special biotechnologies. It is also possible to build orbital solar-ray reflectors. This project may eventually prove less expensive than the costs of global warming. The statement called fordeveloping and promoting Carbon Content Sequestering (CCS) technologies for accumulating, storing and extracting (sequestering) fossil-fuel carbon. This primarily concerns coal, which will remain a major source of energy for the next 50 years. All surplus carbon could be stored under the ground or dumped into the sea. 9. Mr. Izrael is an active supporter of the so-called optimal scenario aiming to change the meteorological solar constant by spraying fine dispersed aerosols of sulphuric acid and other substances into the lower atmosphere at 12-16 km altitudes. This will decrease sunshine reaching the Earth’s surface and reduce the temperature in the troposphere by the required number of degrees, serving as an instrument of climate change. In 1974, Mikhail Budyko, member of the Soviet Academy of Science and author of the global-warming theory, proposed the aerosol-spraying method for increasing natural atmospheric layers. It is a well-known fact that after volcanic eruptions, surface temperature is reduced over vast areas because natural

aerosols block sunshine and bring temperature down. Sulphuric acid aerosols could be sprayed from specially-equipped planes. According to Mr. Izrael, this is an optimal and inexpensive scenario in case of fast global warming. It would be possible to change the situation in 12 months or several years at most. Right now, a group of climatologists headed by Mr. Izrael is preparing to conduct an experiment to assess the impact of sulphuric acid aerosols on temperature fluctuations in some Russian areas. However, the method has some drawbacks. For example, the stratosphere must be sprayed regularly because sulphuric acid aerosols will eventually drift to the ground. But their amount is a thousand times smaller than current greenhouse gas emissions. According to Mr. Izrael, international agreements and joint projects are needed to introduce the aerosol-spraying method. “We have to accomplish this objective because climate remains a major problem and a hard-to-solve social phobia.” —RIA Novosti

I. Answer the following questions:
(a) The G-8 summits have been logically expanded. How?
(b) What are the ways to transfer the society into a low-carbon society? (Mention two).
(c) What is meant by Geo-Engineering TechnologieGeo
(d) Why has dispersal of aerosols of Sulphuric acid been most favoured by Scientists?
(e) How does plankton help tame climate?

II. Find words from the passage which mean the same as:
(a) To state clearly and firmly that something must be done or how it must be done. (para 4).
(b) Living for two years or more. (para-8)
(c) Strong unreasonable fear of something. (para-9)
III. FOR ADDITIONAL PRACTICE : Look up the Dictionary for the meaning of the following words : (a) optimal (b) eventually (c) accomplish

Vacation Holiday Homework

Class-XII

Subject-Physics

1. Answer the following

(a) Define electric flux. Write its SI unit

(b) A uniform electric field E= E_xi N/C for X>0 and E=E_xi N/C for X <0 are given. A right circular cylinder of length 'l' cm and radius 'r' cm has its centre at the origin and its axis along the x-axis. Find out the net outward flux. Using gauss's law write the expression for the net charge within the cylinder.
2. State gauss's theorem in electrostatics. Using this theorem, derive an expression for the electric field intensity due to an infinitely long, straight wire of linear charge density lambda.

3. (a) Define the term 'electric dipole moment' Is it a scalar or a vector?

(b) Deduce an expression for the electric field at a point on the equatorial plane of an electric dipole of length 2a

4. A point charge is placed at the centre of a spherical Gaussian surface. How will electric flux change if
(a) The sphere is replaced by a cube of same or different volume.
(b) A second charge is placed near, and outside the original sphere.
(c) A second charge is placed inside the sphere
(d) The original charge is replaced by an electric dipole.
(e) The magnitude of charge is doubled

5. An electric dipole of length 2 cm is placed with its axis making an angle of 60^0 to a uniform electric field of 10^5 N/C. If it experiences a torque of $8\sqrt{3}$ Nm. Calculate
(a) Magnitude of the charge on the dipole, and
(b) Potential energy of the dipole.

SUMMER VACATION HOLIDAY HOMEWORK

SUBJECT- CHEMISTRY

CLASS -XII **SESSION -2022-2023**

Q1) Prepare an ivestigatory project

Q2) Complete the work with chapter 2 in our notebook.

Q3) Solve CBSC question paper of chapter 2