DAV PUBLIC SCHOOL, IFFCO, PARADEEP
SUMMER HOLIDAY HOME WORK 2025-26
CLASS-XII (SCIENCE)

SUBJECT	
ENGLISH	1. Lesson presentation student wise will be shared in the group. 2. Read the chapters No- 2,3,4,5 (Flamingo), 2,3,4,5 (Vistas) and write the summary.
HINDI	1.सिल्वर वेडिंग कहानी के सभी प्रश्न और उत्तर hw कॉपी में लिखिए। 2. 'भक्तिन' कहानी की शिक्षा एवं उद्देश्य को विस्तार पूर्वक लिखिए । 3.उल्टा पिरामिड शैली और इंटरनेट पत्रकारिता को विस्तारपूर्वक लिखिए।
MATHEMATICS	1. Solve all the exercise and Exemple problems of ch-1, 2 from exemplar in separate copy including MCQs. 2. Solve all the additional problem shared in Whatsapp group from chapter 1 & 2 in a separate copy.
PHYSICS	Do the homework of Physics as mentioned in attached PDF.
CHEMISTRY	1. Solve all the assignments, examples, intext and exercise Q.A of ch-1 & 2 in HW copy. 2. Solve all question answers of NCERT exemplar in a separate copy (ch-1 & ch-2). 3. Write the correct answer of chapter end test-1(solution) in exam copy.
BIOLOGY	Do the homework of Biology as mentioned in attached PDF.
COMPUTER SCIENCE	Do the homework of Computer Science as mentioned in attached PDF.
PHYSICAL EDUCATION	1. Do all the question and answers of chapter -1. 2. Write an essay on 11th International Yoga Day. 3. Preapare a project on- "SAI Khelo India Physical Fitness test" and it is to be pasted in the copy.

DAV PUBLIC SCHOOL, IFFCO, PARADEEP

CLASS- XII, SUMMER HOLIDAY HOMEWORK (2025)

SUB – PHYSICS

- **Solve question no. 1 to 20 given below by your own understanding.**

1. If **E** = $3\hat{i} + 4\hat{j} - 6\hat{k}$, find the electric flux through a surface of area 20 units in Y-Z plane.

2. Plot a graph showing the variation of coulomb's force (F) versus $1/r^2$, where '*r*' is the distance between the two charges of each pair of charges: (1mC, 2mC) & (2mC, –3mC). Interpret the graphs obtained.

3. A proton and an alpha particle enter into a region of uniform electric field. What is the ratio of the force on the proton to that on the alpha particle?

4. Find the charge on a wire of length10cm if line charge density λ = (2 x +10) C/m. (Where 'x' is measured from origin.)

5. Two pith-balls each weighing 10^{-3} kg and suspended from the same point by means of silk threads 0.5 m long. On charging the balls equally, they are found to repel each other to a distance of 0.2 m. Calculate the charge on each ball.

6. The force between two equal charges placed in a medium at a distance of 9 cm from each other is 16 dyne. On increasing one of the charges by 56 Stat-Coulomb, it is found that the distance between the charges must be changed by 3 cm in order to keep the force between them the same. Calculate the magnitude of the charges and the dielectric constant of the medium. Given, 1 C = 3×10^9 Stat-Coulomb.

7. Two particles, each having a mass of 5 gm & charge 1×10^{-7} Coulomb, Stay in equilibrium, on a horizontal table with a separation of 10 cm between them. The coefficient of friction between the particle & the table is same for both the particles. Find the coefficient of friction.

8. Two pith-balls each weighing 10^{-3} kg and suspended from the same point by means of silk threads 0.5 m long. On charging the balls equally, they are found to repel each other to a distance of 0.2 m. Calculate the charge on each ball.

9. Find the Electric Field due to two parallel plane sheets of charge density $+\sigma_1$ & $+\sigma_2$ (Assuming $\sigma_1 > \sigma_2$) in the region i) between the sheets ii)in the region outside the two sheets

10. Two balls 'A' & 'B' of same mass 'M' & charges +Q , -Q are suspended by two strings of same length from two different suspension points S_1 & S_2 .If S_1S_2=3x & AB=x, then show that;

    (a) Tension in the string is $T = \frac{Q^2 L}{4\pi\varepsilon_0 x^3}$ $\quad$ $(b)\ \tan\theta = \frac{Q^2}{4\pi\varepsilon_0 x^2 Mg}$

11. An inclined plane making an angle of 30^0 with the horizontal is placed in a uniform horizontal electric field of 100 N/C. A particle of mass 1 kg & charge 0.01 C is allowed to slide down from rest from a height of 1 m. If the co-efficient of friction is 0.2, find the time it will take for the particle to reach the bottom.

12. N identical spherical drops charged to the same potential 'V' are combined to form a big drop. Find the potential of the new big drop formed.

13. In the electric field of a point charge 'q', the four points A,B,C and D are equidistant from q, however AB>AC>AD. Calculate the work done in taking a unit charge along AB, AC and AD.

14. Three identical charges each +q are placed at the corners of an equilateral triangle of side d cm. Calculate the force on a charge +2q at the centroid of the triangle.

15. Two charged conducting spheres of radii 'a' and 'b' are connected to each other by a thin wire. What is the ratio of electric fields on the surface of two spheres?
Hint: $V_1 = V_2$ So, $q_1/q_2 = a/b$, $E_1/E_2 = q_1b^2/ q_2a^2 = b/a$)

16. Three point charges of + 2 μC, – 3μC and – 3μC are kept at the vertices A, B and C respectively of an equilateral triangle of side 20 cm. What should be the sign and magnitude of the charge to be placed at the mid-point (M) of side BC so that the charge at A remains in equilibrium

17. A small sphere of radius a carrying a positive charge q is placed concentrically inside a large hollow conducting shell of radius b (b>a). This outer shell has charge Q on it. Show that if these spheres are connected by a conducting wire, charge will always flow from the inner sphere to the outer sphere irrespective of the magnitude of the two charges.

18. A charge is uniformly distributed over a ring of radius a. Obtain an expression for the electric field intensity E at a point on the axis of the ring. Hence show that for points at large distances from the ring it behaves like a point charge.

19. Describe schematically the equipotential surfaces corresponding to

a. a constant electric field in the *z*-direction,
b. a field that uniformly increases in magnitude but remains in a constant (say, *z*) direction,
c. a single positive charge at the origin, and
d. a uniform grid consisting of long equally spaced parallel charged wires in a plane

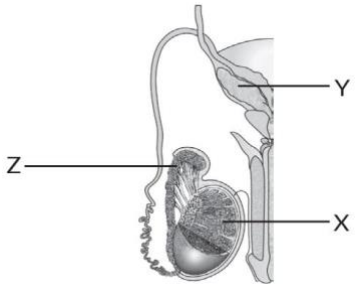
20. A small sphere of radius $r1$ and charge q_1 is enclosed by a spherical shell of radius r_2 and charge q_2. Show that if q_1 is positive, charge will necessarily flow from the sphere to the shell (when the two are connected by a wire) no matter what the charge q_2 on the shell is.

- **Complete NCERT Exercise and Examples of CH. 1 and CH.2 (related to Electric Potential)**
- **Practise all the numerical and conceptual questions done in the class.**
- **Practise all the derivations till taught and write neatly in the Derivation copy.**
- **Write the experiments in Physics Practical Record that will be shared in class XII Physics WA group**
- **Utilise your Holidays judiciously**

SUBJECT-BIOLOGY
CHAPTER - HUMAN REPRODUCTION

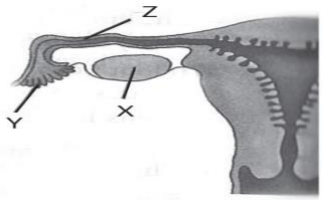
- **Solve all the questions given below by your own understanding.**

1. The given diagram shows human male reproductive system (one side only).



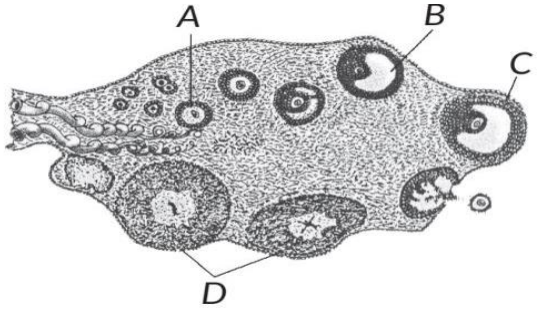
(a) Identify 'X' and write its location in the body.
(b) Name the accessory gland 'Y' and its secretion.
(c) Name and state the function of 'Z'.

2. The figure given below shows the sectional view of the human female reproductive system.



The diagram above shows a part of the human female reproductive system.
(a) Name the gamete cells that would be present in 'X' if taken from a newborn baby.
(b) Name 'Y' and write its function.
(c) Name 'Z' and write the events that take place here. (Al 2015C

3. The diagram given below shows the events occurring in an ovary during oogenesis in a human female.



(a) Name the hormone that helps in growth of A→B→ C.
(b) Name the hormone secreted by A and B.
(c) State the role of hormone produced by D.

4. Name the three different parts of a human sperm and write their involvement in the process of fertilisation.

5. Construct a flow chart exhibiting sequential events of oogenesis In the process of fertilisation.

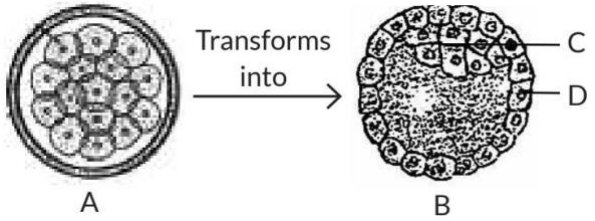
6. Explain the hormonal control of spermatogenesis in humans.

7. Draw the diagram of a mature human sperm and label the parts that
(i) helps it reaching to the ovum
(ii) providing energy for it to reach the ovum.

(iii) helping it to gain entry into the ovum.

8. Explain the role of pituitary and ovarian hormones in the menstrual cycle of human females.

9. Study the given diagram.

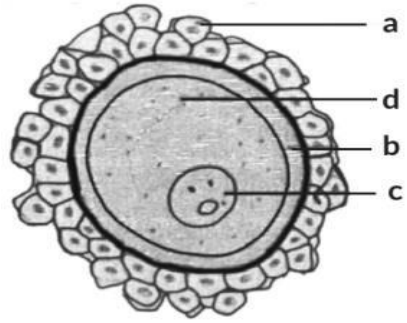


A is an embryonic stage that gets transformed into B, which in turn gets implanted in the endometrium in human females.

(a) Identify A, B and its parts C and D.

(b) State the fate of C and D in the course of embryonic development in humans.

10. Given below is a diagrammatic representation of a human ovum.

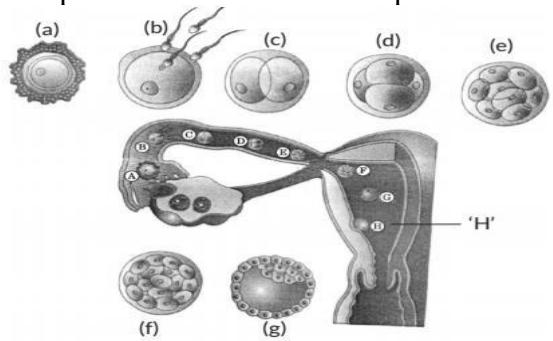


(i) Identify the parts 'a', 'b' and 'c'.

(ii) This ovum is released from the ovary with incomplete meiotic division. When, where and how is the meiotic division completed?

(iii) How does an ovum ensure the entry of a single sperm during fertilisation?

11. Study the figure given below of a human female reproductive tract showing the transport of ovum, its fertilisation and growing embryo moving through the fallopian tube and answer the questions that follow:



(i) Identify the embryonic stages 'e' and 'g' and differentiate between them.

(ii) Describe the process of implantation as shown in figure 'H'

- **Complete NCERT Exercise and Examples of CH. 1 and CH.2 in homework copy.**
- **Write the experiments in Physics Practical Record that will be shared in class XII Biology WA group.**

SUBJECT-COMPUTER SCIENCE

CHAPTER – REVIEW OF BASICS OF PYTHON

Q1. Identify the output of the following Python statements.

```
x = [[10.0, 11.0, 12.0],[13.0, 14.0, 15.0]]
y = x[1][2]
print(y)
```

Q2. Identify the output of the following Python statements.

```
x = 2
while x < 9:
   print(x, end='')
   x = x + 1
```

Q3. Identify the output of the following Python statements.

```
b = 1
for a in range(1, 10, 2):
   b += a + 2
print(b)
```

Q4. Identify the output of the following Python statements.

```
lst1 = [10, 15, 20, 25, 30]
lst1.insert( 3, 4)
lst1.insert( 2, 3)
print (lst1[-5])
```

Q5. Evaluate the following expression and identify the correct answer.

a) 16 - (4 + 2) * 5 + 2**3 * 4
b) 6 * 3 + 4**2 // 5 – 8
c) 10 > 5 and 7 > 12 or not 18 > 3
d) 16*5/4*2/5-8
e) not True and False or True

Q6. Which of the following options can be the output for the following code?

```
import random
List=["Delhi","Mumbai","Chennai","Kolkata"]
for y in range(4):
   x = random.randint(1,3)
   print(List[x],end="#")
```

(A) Delhi#Mumbai#Chennai#Kolkata#
(B) Mumbai#Chennai#Kolkata#Mumbai#
(C) Mumbai# Mumbai #Mumbai # Delhi#
(D) Mumbai# Mumbai #Chennai # Mumbai

Q7. Find out the output:

```
mystr = 'MISSISSIPPI'
print(mystr[:4] + "#" + mystr[-5:])
```

Q8. What will be the output of the following code?

```
tup1 = (1,2,[1,2],3)
tup1[2][1]=3.14
print(tup1)
```

Q9. Write a statement in Python to declare a dictionary ‘D’ with 30 keys 0,1,2...29 each having values as -35 .

Q10. Which of the following options will not result in an error when performed on tuples in Python where tupl=(5,2,7,0,3)?

(A) tupl[1]=2 (B) tupl.append(2)
(C) tupl1=tupl+tupl (D) tupl.sort()

Q11. Find out the correct output of the following code:

```
event = "G20 Presidency@2023"
L = event.split(' ')
print(L[::-2])
```

Q12. Predict the output of the Python code given below:

```
dic1={10:0, 20:2}
dic2={30:3, 40:4}
dic3={50:5,60:6}
dic4 = {}
for d in (dic1, dic2, dic3):
   dic4.update(d)
print(dic4)
```

Q13. Given is a Python string declaration:

```
message='FirstPreBoardExam@2022-23'
```

Write the output of: print(message[: : -3].upper())

Q14. Find out the correct output of the code:

```
a = "Year 2022 at All the best"
a = a.split('2')
b = a[0] + ". " + a[1] + ". " + a[3]
print (b)
```

Q15. Predict the output of the Python code given below:

```
data=["L",20,"M",40,"N",60]
times=0
alpha=""
add=0
for c in range(1,6,2):
   times = times + c
   alpha = alpha + data [c-1] + "@"
   add = add + data[c]
print (times, add, alpha)
```

Q16. Find out the output :

```
a='CBSE 2023'
b=len(a.split('B')+list(a.partition('0'))+list(str(a.startswith('b'))))
print(b)
```

Q17. Consider the following dictionary and find out the output:

```
D={‘India’:{‘MatchNo’:1,’Venue’:’Mumbai’,’Score’:259}}
print(D.values())
```

Q18. Find out the correct output for the given code:

```
s="sample paper cs"
s=s[0].upper()+s[1::-1]+s[-1].upper()+s[0]
print(s)
```

Q19. Write the output displayed on execution of the following Python code :

```
LS = ['HIMALAYA', 'NILGIRI', 'ALASKA', 'ALPS']
D = {}
for S in LS:
   if len(S) % 4 == 0:
      D[S] = len(S)
for K in D:
   print(K, D[K], sep = '#')
```

Q20. What will be the output of following code:

```
t1 =('11','22','33','44','55')
c=2
t=0
```

```
for i in [1,3,5,7,9]:
    new_t1=t1[c]
    t=float(new_t1)+i
    print('$',t,end=' ')
    c-=1
```

Q21. What possible output from the given options is expected to be displayed when the following Python code is executed ?

```
import random
Signal = ['RED', 'YELLOW','GREEN']
for K in range(2,0,-1):
    R = random.randrange(K)
    print(Signal[R], end='#')
```

(a) YELLOW#RED# (b) RED#GREEN#

(c) GREEN#RED# (d) YELLOW#GREEN#

Q22. What will be the output of the following code?

```
Str1= "My name is digital"
Str2=Str1[3:7]
strlen = len(Str2)
print(strlen)
```

Q23. (a) Given is a Python string declaration:

```
mySubject = "Computer Science with Python"
```

Write the output of: print(mySubject[-27:-10:2])

(b) Write the output of the code given below:

```
>>>a=[10,20,30,40,50,60,70]
>>> a[3:5]=[100,1000]
>>> a[3:5]=[10000]
>>> print(a)
```

Q24. Predict the output of the Python code given below:

```
t1=(10,20,"book",30,9.5,"item",[12,13],(3,4),30,5,30)
print(t1.index(20))
print( t1.index(30))
print(t1.count(30))
print(t1[-8:-4])
```

Q25. Write the output on execution of the following Python code:

```
S = "Racecar Car Radar"
L = S.split()
for W in L:
    x = W.upper()
    if x == x[::-1]:
        for I in x:
            print(I, end = '*')
    else:
        for I in W:
            print(I, end = '#')
    print()
```

Q26. Write a statement in Python to declare a dictionary ‘D’ with 30 keys 0,1,2...29 each having values as -35

Q27. Find output generated by the following code:

```
p=10
q=20
p*=q//3
q+=p+q**2
```

```
print(p, q)
```

Q28. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only:

(i) To remove the item whose key is "**NISHA**" from a dictionary named Students.

For example, if the dictionary **Students** contains

{"ANITA" : 90, "NISHA" : 76, "ASHA" : 92} , then after removal, the dictionary should contain **{"ANITA" : 90 , "ASHA" : 92}**

(ii) To display the number of occurrences of the substring "**is**" in a string named **messsage** .

For example if the string **message** contains "**This is his book**", then the output will be 3.

Q29. (a) Given is a Python string declaration:

```
myexam="Aditya-L1"
```

Write the output of:

```
print( myexam[ 4 : -4 ] )
```

(b) Write the output of the code given below:

```
my_dict = {"name": "Aman", "age": 26}
my_dict['age']=27
my_dict['address'] = "Delhi"
print(my_dict.items())
```

Q30. Predict the output of the following :

```
D = {1 : "One" , 2 : "Two", 3 : "Three"}
L = []
for K , V in D.items() :
    if V[0] == 'T' :
        L.append(K)
print(L)
```

CHAPTER – WORKING WITH FUNCTIONS

Q1. Write a function INDEXLIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of L.

For example:

If L contains [12,4,0,11,0,56]

The indexList will have - [0,1,3,5]

Q2. Find out the output of the following code :

```
a = 10
def fun():
  global a
  a=a+2
print(a)
fun()
print(a)
```

Q3. Predict the output of the following code:

```
def callon(b = 20, a = 10):
    b = b + a
    a = b - a
    print(b, "#", a)
    return b
x = 100
y = 200
x = callon(x,y)
print(x,"@",y)
y = callon(y)
print(x,"@",y)
```

Q4. Find out the output of the following code :

```
def increment(marks):
    p = []
    for m in marks :
        m = m + 5
        if (m>100):
            m = 100
        p.append(m)
    return p
def decrement(marks):
    for i in range(0,len(marks)):
        marks[i] = marks[i] - 5
        if (marks [i] < 0):
            marks[i] = 0
a = [45,55,96,85]
a = increment(a)
print(a)
decrement(a)
print(a)
```

Q5. Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.

```
DEF execmain():
    x = int(input("Enter a number:"))
    if (abs(x)= x)
        print("You entered a positive number")
    else:
        x=*-1
```

Q6. Find the output:

```
value = 50
def display(N):
    global value
    value = 25
    if N%7==0:
        value = value + N
    else:
        value = value - N
print(value, end="#")
display(20)
print(value)
```

Q7. Shristi has written a Python program to add all the numbers of the list. Her code is having errors. Rewrite the correct code and underline the corrections made.

```
define sum(numbers):
    total = 0
    for x in numbers
        total += x
    returns total
print(sum([4, 6, 3, 5, 6]))
```

Q8. The code given below accepts five numbers and displays whether they are even or odd: Observe the following code carefully and rewrite it after removing all syntax and logical errors: Underline all the corrections made.

```
def EvenOdd()
    for i in range(5):
        num = int(input("Enter a number")
        if num / 2 == 0:
```

```
            print("Even")
        else:
        print("Odd")
    EvenOdd()
```

Q9. What is the output of the following piece of code?

```
        def a(b):
            b = b + [5]
        c = [1, 2, 3, 4]
        a(c)
        print(len(c))
```

Q10. What is the output of the following code?

```
        a=10
        b=20
        def change():
            global b
            a=45
            b=56
        change()
        print(a, end = ' ')
        print(b)
```

Q11. What is the output of the following code?

```
    def change(one, *two):
        print(type(two))
    change(1,2,3,4)
```

Q12. Write a function LShift(Arr,n) in Python, which accepts a list Arr of numbers and n is a numeric value by which all elements of the list are shifted to left.

Sample Input Data of the list
Arr= [10,20,30,40,12,11], n=2
Output
Arr = [30,40,12,11,10,20]

Q13. Write the output of the code given below:

```
def func(x,y=10):
    if x%y==0 :
        return x+2
    else:
        return y-1
p,q=20,23;
print(p,",",q)
q=func(p,q)
print(p,",",q)
```

Q14. Find out the output for the given code:

```
n=2
def fun(n):
    n=3
    return n*n
print(n*n,"@",fun(n),"@",n+1,"@",fun(n)+3)
```

Q15. Find out the output :

```
    def Change(P, Q = 30):
        P = P + Q
        Q = P - Q
        print(P , "#",Q)
        return (P)
    R = 150
```

```
S = 100
R = Change(R,S)
print(R,"#",S)
S = Change(S)
```

Q16. Write the definition of the function swap(Li) which takes List as an argument and swap alternate elements of the list .

Ex : L = [1,2,3,4,5,6]

Output : L = [2,1,4,3,6,5]

Q17. Write the definition of function fun(str) in python which takes str as an parameter and calculate the total number of occurrences of letter 'p' or 'P' in a given string .

Q18. Write a function lenFOURword(L), where L is the list of elements (list of words) passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all four lettered word of L.

For example:

If L contains ["DINESH", "RAMESH", "AMAN", "SURESH", "KARN"]

The indexList will have [2, 4]

Q19. Write a function search_state(state,initial) to display all the states starting with specified initial from the dictionary state. The code should be key of dictionary and full name should be value. Store n number of records in the dictionary.

For example : {'GJ':'Gujarat','RJ':'Rajsthan'}

Enter Initial: G

Gujarat

Q20. Write a Python program using the function to accept characters in a list, then find and display vowels present in the list.

ASSERTION AND REASONING QUESTIONS

Q1 – Q5 are ASSERTION AND REASONING based questions. Mark the correct choice as

(A) Both A and R are true and R is the correct explanation for A

(B) Both A and R are true and R is not the correct explanation for A

(C) A is True but R is False

(D) A is False but R is True

Q1. Assertion (A): A function is a block of organized and reusable code that is used to perform a single, related action.

Reasoning (R): Function provides better modularity for your application and a high degree of code reusability

Q2. Assertion (A):- Raju is working on a list of numbers. He wants to print the list values using traversing method. He insists that list can be traversed both in forward direction and backward direction.

Reasoning (R):- List can be traversed from first element to last element only.

Q3. Assertion (A):- If the arguments in function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments.

Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).

Q4. Assertion (A): The scope refers to different parts of the function and program within which a variable or value is legal and accessible.

Reasoning (R): global is a keyword to create global variable.

Q5. Assertion (A): In the case of positional arguments, the function call and function definition statements match in terms of the number and order of arguments.

Reasoning (R): During a function call, positional arguments should precede keyword arguments in the argument list.