St. Mary's School, Dwarka
Winter Holiday Homework-2023
Class XI

General Instructions:

1) The work should be done neatly and in a systematic way.
2) The given questions are to be done in your respective subject notebooks

Subject: English

Q1. Complete the following question according to the given instruction for each :-

Select the correct option to fill in the blanks:- **(½x8=4)**

i. Tourist: I would like to know about the tours your company offers.
Travel Agent: Sir, could you tell me which_____ ?

a) places you are liking to visit
b) places you would like to visit
c) places you are to visit
d) places you are visiting

ii. For the first time, the Indian Railways _____ to utilize track-laying machines that _____ help put in place one kilometer of railway lines each day.

a) was planned, might
b) will have planned, can
c) is planning, could
d) planned, may

iii. The reason for Kalari being _____ than a mere martial art can be attributed to the fact that Brahmins practiced it. Their influence _____ Kalari impart an all-round training to the mind and body of the student.

a) more, has made
b) many, have made
c) much, is making
d) most, will make

iv. Identify the error in the sentence given below:-

A tsunami is *a series of wave in the water body caused at the displacement of a large volume of water*, generally in an ocean or a large lake.

Incorrect	Correct
a) wave at	waves by
b) large or	larger and
c) at an	by the
d) is an	was the

Change into passive form.

v. The poachers had killed twenty-two hundred one-horned rhinos in Kaziranga last year.

a) Twenty-two hundred one-horned rhinos were killed by poachers in Kaziranga last year.
b) Twenty-two hundred one-horned rhinos have been killed in Kaziranga by poachers last year.
c) Twenty-two hundred one-horned rhinos had been killed by poachers in Kaziranga last year.
d) Twenty-two hundred one-horned rhinos are killed by poachers in Kaziranga last year.

vi. The author will launch the novel at the Book Fair tomorrow.

a) The novel will have launched by the author at the Book Fair tomorrow.
b) The novel will be launched by the author at the Book Fair tomorrow.
c) The novel will have been launched by the author at the Book Fair tomorrow.
d) The novel will have being launched by the author at the Book Fair tomorrow.

vii. Rearrange to form a meaningful sentence.

A. Govind Rawat applies for a
B. to leave for his village above Joshinath
C. every year in the month of May
D. long leave from his office in Dehradun

a) ADCB
b) BADC
c) CBAD
d) CADB

viii. Rearrange to form a meaningful sentence.

A. world has gone too far with the
B. such as the mobile phones and internet

C. innovation of new technologies
D. it is an undisputable fact that the

a) ACDB
b) ABCD
c) DACB
d) DCBA

Q2. Your friend's daughter left for her coaching classes yesterday and has not been noticed again. Draft an advertisement under the caption 'Missing' for a local newspaper providing necessary details in not more than 50 words. **(3)**

Q3. The Indian handicraft industry forms a major part of the rich cultural heritage of the country. Yet, many people prefer industrial manufactured goods. Write a speech in 150-200 words on 'The Need to Promote Handicrafts Products in the Indian Market'. **(4)**

Q4.Read the extract and answer the questions that follow:- **(½ x4=2)**

(A) Upward to heaven, whence, vaguely form'd, altogether changed, and yet the same,
I descend to lave the droughts, atomies, dust-layers of the globe,
And all that in them without me were seeds only, latent, unborn;
And forever, by day and night, I give back life to my own origin,
And make pure and beautify it;

i. What is the purpose of the rain when it comes down?

I. quench thirst of the parched land
II. wash the smallest particle on earth
III. clean the entire earth surface
IV. fill the rivers with water

a) I, II and III
b) I, III and IV
c) II, III and IV
d) I, II and IV

ii. The seeds benefit from the rain as it provides _____ .

a) minerals to the seeds
b) refreshment to the seeds
c) nourishment to grow
d) life to the unborn seeds

iii. Antithesis is a figure of speech that places two completely contrasting ideas or clauses in juxtaposition. Which of the following phrases is an example of antithesis?

a) upward to heaven
b) latent unborn
c) day and night
d) pure and beautify

iv. Which phrase in the above stanza means the same as 'not yet developed'?

a) vaguely
b) latent
c) lave
d) atomies

(B) Answer the following questions in 40-50 words each. (2x1=2)

How is Bakhar's account of the Battle of Panipat different from other history books?

Q5. Answer the following questions in 120-150 words. (5x1=5)

"Hope is being able to see that there is light despite all of the darkness." How does Andrew Mason in the lesson 'Birth' emerge victorious amidst many challenges?

Subject : Mathematics

Q1.Given two points A(1, 4) and B(5, 2), find the equation of the circle with AB as the diameter. (3)

Q2.Find the equation of a circle that passes through the points (1, 2), (3, 4), and (5, 6) (3)

Q3.Given a right-angled triangle with vertices (0, 0), (3, 0), and (0, 4), find the equation of the circle inscribed in the triangle (3)

Q4. If a circle has the equation $x^2 + y^2 - 10x + 8y + 25 = 0$, determine whether the point (4, 3) lies inside, outside, or on the circle. (3)

Q5. Find the coordinates of the vertices of an equilateral triangle inscribed in the circle $x^2 + y^2 - 8x + 6y - 20 = 0$. (3)

Subject – Physics

Q1. (i) Equation of a wave travelling on a string is

$y = 0.1 \sin (300t – 0.01x)$, here x is in cm and t is in seconds. Find:

(a) Wavelength of the wave

(b) Time taken by the wave to travel 1m.

(ii) Show graphically the variation of displacement, velocity and acceleration of a Simple Harmonic Oscillator with respect to time. (2+3=5)

Q2. A wave travelling along a string is described by the equation.

$y (x, t) = 0.05 \sin (40x – 5t)$ where all the parameters are in SI unit. Calculate the following:

(a) Amplitude

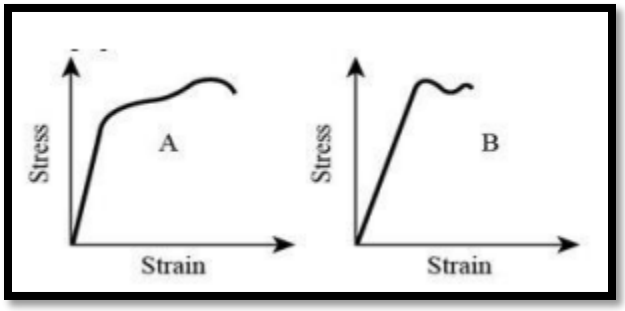
(b) Wavelength

(c) Time period and

(d) Frequency of wave 5

Q3. (i) State Hooke's law. Show graphically the variation of stress Vs strain and mark the following on the graph (a) Proportional limit (b) elastic limit (c) yield point (d) breaking point .(ii) A cable is replaced by another cable of the same length and material but twice the diameter. How will this affect the elongation under a given load? How does this affect the maximum load it can support without exceeding the elastic limit? (3+2=5)

Q4. (i) In a test experiment on a model aeroplane in a wind tunnel, the flow speeds on the upper and lower surfaces of the wing are 70 m s^{-1} and 63 m s^{-1}, respectively. What is the lift on the wing if its area is 2.5 m^2? Take the density of air to be 1.3 kg m^{-3} (ii)The stress-strain graphs for materials A and B are shown in figure. The graphs are drawn to the same scale. (a) Which is more brittle? Give reason. (b) Which of the two is the stronger material? Give reason. (3+2=5)



Q5. (i) If the radius of the earth were to decrease by 1%, keeping its mass same, how will the acceleration due to gravity change? (ii)The radii of two planets are R and 2R respectively and their densities ρ and ρ/2 respectively. What is the ratio of acceleration due to gravity at their surfaces? (iii)At what depth is the value of 'g' same as at a height of 40 km from the surface of earth. (5)

Subject: Biology

Q1. (a) What is oxyhaemoglobin? (2.5+2.5)
(b)What is oxygen dissociation curve?

Q2. (a) Delhi is a highly polluted in city and there is a rise in the number of individual experiencing difficulty in breathing due to inflammation of bronchi and bronchioles. Name the disorder.
(b) Differentiate between inspiratory capacity(IC) and expiratory capacity(EC). (2.5+2.5)

Q3. (a) Mention any three functions of the conducting part of the respiratory system.
(b) Draw a labelled diagram of section of an alveolus with pulmonary capillary. (3+2)

Q4. Draw a well labelled diagram of human heart. (5)

Q5. Draw and label schematic plan of circulation in humans beings. (5)

Subject: Chemistry

Q1. Write the equilibrium expression for the following reversible chemical reaction: $2A+3B \rightleftharpoons 4C$. If the concentration of A is 0.1 M and B is 0.2 M at equilibrium, calculate the equilibrium concentration of C. Justify the mathematical expression for the equilibrium constant. (5)

Q2. Explain how changes in temperature affect the equilibrium position of an exothermic reaction. Provide an example of an exothermic reaction and discuss how an increase in temperature would influence the concentration of reactants and products at equilibrium. Use Le Chatelier's Principle to support your explanation. (5)

Q3. Define the reaction quotient (Q) and compare it with the equilibrium constant (K). Provide a hypothetical chemical reaction and explain how the values of Q and K can be used to predict the direction of the reaction and the position of equilibrium. Include a numerical example for clarity. (5)

Q4. Describe the common ion effect and its impact on the solubility of salts. Choose a specific example of a sparingly soluble salt and explain how the presence of a common ion affects the solubility equilibrium. Discuss how the common ion effect can be used to control precipitation in certain chemical processes. (5)

Q5. Explore the concept of equilibrium in biological systems, focusing on enzymatic reactions. Explain how enzymes influence the rates of reactions and how the equilibrium between substrates and products is established in enzymatic processes. Provide an example of an enzyme-catalyzed reaction and discuss the factors that can affect enzyme activity at equilibrium. (5)

Subject: Psychology

Q1. What is the basic idea behind Maslow's hierarchy of needs? Explain with suitable examples. (5)
Q2. How can creative thinking be enhanced? (5)
Q3. State the determinants of selective attention. How does selective attention differ from sustained attention? (5)
Q4. A good role model is very important for a growing child. Discuss the kind of learning that supports it. (5)
Q5. What are the monocular cues of depth perception? Explain the role of binocular cues in the perception of depth. (5)

Subject: Informatics Practices

Q1 Consider the following table: Customers and write SQL Commands for the following: (1x10=10)

Table: Customers

customer_id	first_name	last_name	age	country
1	John	Doe	31	USA
2	Robert	Luna	22	USA
3	David	Robinson	22	UK
4	John	Reinhardt	25	UK
5	Betty	Doe	28	UAE

a) Display all columns of the Customers table.
b) Select all records from the Customers table with last_name 'Doe'
c) Create the above table and insert the records as shown.
d) Select age and country columns from customers table where the country is 'USA'
e) Select all columns from Customers table with first name 'John'
f) Select all columns from Customers table with age greater than 25
g) Select all columns from Customers table with last_name 'Doe' and country 'USA'
h) Modify the age to 21 for customer id 1.
i) Modify changes the value of the country column to NP for all rows.
j) The SQL command changes the value of the first_name column to **Johnny** and last_name to **Depp** if customer_id is equal to **1**.

Q2 Predict the output for the following: **(1x6=6)**

a)

```
dictionary = {}
dictionary[1] = 1
dictionary['1'] = 2
dictionary[1] += 1

sum = 0
for k in dictionary:
   sum += dictionary[k]
 print (sum)
```

b)

```
dictionary = {1:'1', 2:'2', 3:'3'}

del dictionary[1]
dictionary[1] = '10'
del dictionary[2]
print (len(dictionary))
```

c)

```
list1 = ['physics', 'chemistry', 1997, 2000]
list2 = [1, 2, 3, 4, 5, 6, 7 ]
print "list1[0]: ", list1[0]       #statement 1
print "list1[0]: ", list1[-2]      #statement 2
print "list1[-2]: ", list1[1:]     #statement 3
print "list2[1:5]: ", list2[1:5]    #statement 4
```

d)

```
L1 = [1, 1.33, 'GFG', 0, 'NO', None, 'G', True]
val1, val2 = 0, ''
for x in L1:
   if(type(x) == int or type(x) == float):
      val1 += x
   else if(type(x) == str):
      val2 += x
   else:
      break
print(val1, val2)
```

e)

```
L1 = [1, 2, 3, 4]
L2 = L1
L3 = L1.copy()
L4 = L3
L1[0] = [5]
print(L1, L2, L3, L4)
```

f)

```
words= ["Apple", "Banana", "Car", "Dolphin" ]
for word in words:
    #This loop is fetching word from the list
    print ("The following lines will print each letters of "+word)
    for letter in word:
        #This loop is fetching letter for the word
        print (letter)
    print("") #This print is used to print a blank line
```

Q3 Find the errors in the following Python snippets: (3)

a)

```
 for number in range(10):
     count = count + number
print("The count is:", count)
```

b)

```
for number in range(10):
   # use a if the number is a multiple of 3, otherwise use b
   if (Number % 3) == 0:
      message = message + a
   else:
      message = message + "b"
print(message)
```

c)

```
numbers = [1.5, 2.3, 0.7, -0.001, 4.4]
total = 0.0
for n in numbers:
   assert n > 0.0, 'Data should only contain positive values'
   total += n
print('total is:', total)
```

Q4 Answer the following:

a) What are the advantages of Tuple over List? (1)

b) What is indexing and negative indexing in Tuple? (1)

c) What is the difference between a mutable data type and an immutable data type? (1)

d) Write the characteristics of membership operator. (1)

e) Write the equivalent Python expression for the following: $x^3 + y^3 + \sqrt{\frac{xy}{2a}}$ (1)

f) Write SQL command to create the following table STUDENT with the given constraints: (2)

Field Name	Type	Width	Constraints
Rollno	int		Primary key
Stud_Name	varchar	25	
DOB	date		
Subject	varchar	24	
Marks	int		

g) How many ways are there in Python to represent an integer literal? (2)

h) What do you mean by integrity constraint in a database? (2)

Q5 Practical Work:

Execute all Type C programs of the chapters Lists and Dictionaries and paste the screenshots in the practical file.

Subject: Computer Science

Q1 Consider the following table: Customers and write SQL Commands for the following: (1x10=10)

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    else:
        break
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e)

```
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L3 = L1.copy()
L4 = L3
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```

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d) Write the characteristics of membership operator. (1)

e) Explain about string slicing with examples. (1)

f) Simplify: A(A + B) + (B + AA)(A + B) (2)

g) Convert the following numbers as directed: (1x2=2)

(i) $(1243)_8 = (\quad)_2$

(ii) $(7AB4)_{16} = (\quad)_{10}$

h) Design a logic circuit to realize the Boolean function: (1x2=2)

(i) y = A'B'C'D + AB'C'D + ABC'D + ABCD'

(ii) z= (A+B)'(C+D) C'

Q5 Practical Work:

Execute all Type C programs of the chapters Lists, Tuples and Dictionaries and paste the screenshots for the practical file.

Subject – Economics

Q1. State with reasons, whether the following items will have elastic or inelastic demand: (i) Matchbox; (ii) Cold Drink; (iii) Medicines; (iv) Salt; (v) Electricity; (vi) Cigarettes; (vii) Butter for a poor person. (5)

Q2.The price elasticity of demand for good × is known to be twice that of good Y. Price of X falls by 5% while that of good Y rises by 5%. What is the percentage change in the quantities demanded of X and Y? (5)

Q3.What are the different phases in the Law of Variable Proportions in terms of Total Product? Give reasons behind each phase. Use diagram. (5)

Q4.Let the production function of a firm be: Q = 2L2K2. Find out the maximum possible output that the firm can produce with 5 units of L and 2 units of K. What is the maximum possible output that the firm can produce with zero unit of L and 10 units of K? (5)

Q5.Why is the equality between marginal cost and marginal revenue necessary for a firm to be in equilibrium? Is it sufficient to ensure equilibrium? Explain. (5)