St. Mary's School, Dwarka<br>Holiday Homework<br>Std. XII

Week 2
Worksheet 2

## Subject: English

## Q1. Read the following passage carefully.

1. Every profession or trade, every art and every science have its technical vocabulary, the function of which is partly to designate things or processes which have no names in ordinary English partly to secure greater exactness in nomenclature. Such special dialects or jargons are necessary in technical discussions of any kind. Being universally understood by the devotees of the particular science or art, they have the precision of the mathematical formula. Besides, they save time, for it is much more economical to name a process than to describe it. Thousands of these technical terms are properly included in very large dictionary, yet, as a whole, they are rather on the outskirts of the English language than actually within its borders.
2. Different occupations, however, differ widely in the character of their special vocabularies. In trades and handicrafts and other vocations like farming and fishing that have occupied great numbers of men from remote times, the technical vocabulary is very old. An average man now uses these in his own vocabulary. The special dialects of law, medicine, divinity and philosophy have become familiar to cultivated persons.

Based on the understanding of the passage, answer the questions given below. (1x5=5)
i) What is the role of technical vocabulary?
ii) State 2 advantages of using it.
iii) The writer of the passage is probably a
iv) Who does the phrase 'cultivated persons' refer to?
v) The word 'nomenclature' means
a. classification
b. bifurcation
c. perfunctory
d. declaration

Q2. The Literary Club of your school is putting up the play 'Waiting for Godot'. As secretary of the club, draft an invitation inviting the Senior journalist, Pranoy Roy to be the Guest of Honour at the function. Write the invitation in not more than 50 words. You are Sujit/ Ajita.

Q3. Girls in many parts of India are still discouraged from going to school. Consequently, a sizable section of the population is deprived of education. Schemes like Sarva Shiksha Abhiyan, CBSE scholarship to the single girl child and the Government's policy of giving free education to girls have come as a boon to our society. Write an article in 150-200 words on the education of the girl child in the country.

Q4. Design/ draw and paste picture of Japanese Kimono on an A-\$ size pastel sheet.
Answer the questions briefly in 30-40 words:
Q5. Why did her mother's face look like that of a corpse?
Q6. Why did Franz dread going to school?
Q7. What is Saheb looking for in the garbage dumps?

## Answer the following questions in 120-150 words.

Q8. What usual noises could be heard in the street when the school began? How was the scene in the school in the morning of the last lesson different from that on other days?

## Subject: Physics

No. of Questions: 10
M.M:25

## Objectives:

- Revision of concepts
- Application of the concepts to real life situations.
- Skills to carry out research work and develop scientific aptitude.


## Instructions:

- Neatly write all the answers in your assignment notebook.
- Attempt the questions keeping in mind the weightage of each question

Q1. In the circuit shown in the figure, the potential difference across the $4.5 \mu \mathrm{~F}$ capacitor is

(a) $8 / 3$ volt
(b) 4volt
(c) 6 volt
(d) 8 volt
1

Q2. A charge Q is placed at each of the opposite corners of a square. A charge q is placed at each of the other two corners. If the net electrical force on Q is zero, then $\mathrm{Q} / \mathrm{q}$ equals
(a) $-\overline{2} \sqrt{2}$
(b) -1
(c) 1
(d) $-1 / \sqrt{ } 2$

Q3. An electron initially at rest, is accelerated through a potential difference of 200 volt, so that it acquires a velocity $8.4 \times 10^{6} \mathrm{~m} / \mathrm{s}$. What will be the value of e/m of electron?

Q4. A capacitor of unknown capacitance is connected across a battery of V volts. The charge stored in it is $360 \mu \mathrm{C}$. When potential across the capacitor is reduced by 120 V , the charge stored in it becomes $120 \mu \mathrm{C}$.Calculate: (a)The potential V and the unknown capacitance C.(b) What will be the charge stored in the capacitor, if the voltage applied had increased by 120 V ? Q5. A dipole is present in an electrostatic field of magnitude $10^{6} \mathrm{~N} / \mathrm{C}$. If the work done in rotating it from its position of stable equilibrium to its position of unstable equilibrium is $2 \times 10^{23} \mathrm{~J}$, then find the magnitude of the dipole moment of this dipole.
Q6. Plot a graph showing the variation of coulomb force $(\mathrm{F})$ versus $\left(1 / \mathrm{r}^{2}\right)$, where r is the distance between the two charges of each pair of charges : $(1 \mu \mathrm{C},-3 \mu \mathrm{C})$ and $(1 \mu \mathrm{C}, 2 \mu \mathrm{C})$. Interpret the graphs obtained.
Q7. A short electric dipole has a dipole moment $16 \times 10^{-9} \mathrm{Cm}$. Determine the electric potential due to the dipole at a point distant 0.6 m from the centre of the dipole situated (i) on the axial line.(ii) on the equatorial line (iii) on a line making an angle of $60^{\circ}$ with the axis.

Q8. The equivalent capacitance of the combination between $A$ and $B$ in the given figure is $4 \mu \mathrm{~F}$.
(i) Calculate capacitance of the capacitor C .
(ii) Calculate charge on each capacitor if a 12 V battery is connected across terminalsA and B.
(iii) What will be the potential drop across each capacitor?


Q9. In the figure shown, calculate the total flux of the electrostatic field through the spheres $S_{1}$ and $S_{2}$. The wire, $A B$, shown here, has a linear charge density, $\lambda$, given by $\lambda=\mathrm{kx}$ where x is the distance measured along the wire, from the end $A$.


Q10. When electric dipole is placed in uniform electric field, its two charges experience equal and opposite forces, which cancel each other and hence net force on electric dipole in uniform electric field is zero. However, these forces are not collinear, so they give rise to some torque on the dipole. Since net force on an electric dipole in a uniform electric field is zero, so no work is done in moving the electric dipole in uniform electric field. However, some work is done in rotating the dipole against the torque acting on it.

(i) The dipole moment of a dipole in a uniform external field $\overline{\mathrm{E}}$ is p . Derive the formula for torque $\tau$ acting on the dipole.
(ii) An electric dipole consists of two opposite charges, each of magnitude $1.0 \mu \mathrm{C}$ separated by a distance of 2.0 cm . The dipole is placed in an external field of $10^{5}$ $\mathrm{NC}^{-1}$. Calculate the maximum torque on the dipole.
(iii) Find $\theta$ for which the torque on a dipole in uniform electric field will be minimum.

## Subject: Chemistry

Q. 1 Why phenol undergoes electrophilic substitution more easily than benzene ?
Q. 2 Give the structures of final products expected from the following reactions:
(i)Hydroboration of propene followed by oxidation with $\mathrm{H}_{2} \mathrm{O}_{2}$ in alkaline medium.
(ii)Dehydration of $\left(\mathrm{CH}_{3}\right)_{3} \mathrm{C}-\mathrm{OH}$ by heating it with $20 \% \mathrm{H}_{3} \mathrm{PO}_{4}$ at 358 K .
Q. 3 How can you convert the following?
(i) Phenol to o-hydroxy benzaldehyde
(ii) Methanal to ethanol
Q. 4 (a) How do you convert the following:
(i) Phenol to Anisole
(ii) Ethanol to Propan-2-ol
Q. 5 Give simple chemical tests to distinguish between the following pairs of compounds :
(i) Methanol and Phenol
(ii) Propanol and 2-methylpropan-2-ol
(iii) Cyclohexanol and ethanol
Q. 6 (a) Write the equations involved in the following reactions:
(i) Reimer-Tiemann reaction
(ii) Williamson synthesis
(b) Which of the following isomers is more volatile: o-nitrophenol or p-nitrophenol?
Q. 7 (a) Account for the following:
(i) o-nitrophenol is more steam volatile than p-nitrophenol.
(ii) t-butyl chloride on heating with sodium methoxide gives 2-methylpropene instead of t butyl methylether.
(b) Write the structures of the products when Butan-2-ol reacts with the following:
(i) $\mathrm{CrO}_{3}$ (ii). $\mathrm{SOCl}_{2}$
Q. 8 (a) Arrange the following compound groups in the increasing order of their property indicated
(i) p-nitrophenol, ethanol, phenol (acidic character)
(ii) Propanol, Propane, Propanal (boiling point)
(b) Write the mechanism (using curved arrow notation) of the following reaction :

Ethanol into ether
Q. 9 (a) Write mechanism of the following reaction: Ethanol to ethene
(b) Write the IUPAC name of the following compounds :
$\mathrm{C}_{6} \mathrm{H}_{5}-\mathrm{CH}=\mathrm{CH}-\mathrm{CH}_{2} \mathrm{OH}$ and $\mathrm{HO}-\mathrm{CH}_{2}-\mathrm{CH}=\mathrm{C}\left(\mathrm{CH}_{3}\right)_{2}$
Q. 10 How do you convert the following :
(i) Phenol to anisole
(ii) Propan-2-ol to 2-methylpropan-2-ol
(iii) Aniline to phenol
(iv) Propene to propan-1-ol
(v) Phenol to phenyl ethanoate

## Subject: Computer Science

## Instructions:

- Neatly write all the answers in your homework notebook.

Q1 Write the output of the following:
(i)
for i in '123':
print("retro99", i)
(ii)
for i in [100, 200, 300] :
print(i)
(iii)
for j in range $(10,6,-2)$ :
print (j * 2)
(iv)
for $x$ in range $(1,6)$ :
for y in range $(1, \mathrm{x}+1)$ :
print (x,' ', y)
(v)
for $x$ in range (10, 20):
if ( $\mathrm{x}==15$ ):
break
print (x)
(vi)
for $x$ in range $(10,20)$ :
if $(x \% 2==0)$ :
continue
print (x)

Q2 How is break statement different from continue?

Q3 Write a program to find the sum of $1+1 / 8+1 / 27 \ldots . . .1 / n 3$, where n is the number input by the user.

Q4 From a balance sheet of a company (choose any from your Accountancy book) and create lists for assets, liabilities and equity. Then write a program to check if accounting equation is balanced or not. The program should also calculate Return on

Total Assets as EBIT (Earning Before Interest and Taxes) / Total Net Assets and Debt/Equity ratio as Total Liabilities / Assets - Liabilities

Q5 Given a list $\mathrm{L} 1=[3,4.5,12,25.7,[2,1,0,5], 88]$ which function can change the list to:
(a) $[3,4.5,12,25.7,88]$
(b) $[3,4.5,12,25.7]$
(c) $[[2,1,0,5], 88]$

Q6 Write a program to input your friends' names and their Phone Numbers and store them in the dictionary as the key-value pair. Perform the following operations on the dictionary:
a) Display the name and phone number of all your friends
b) Add a new key-value pair in this dictionary and display the modified dictionary
c) Delete a particular friend from the dictionary
d) Modify the phone number of an existing friend
e) Check if a friend is present in the dictionary or not
f) Display the dictionary in sorted order of names

Q7 Complete the following code and predict the output:
\# Data to count.
names = ['tern', 'goose', 'goose', 'hawk', 'tern', 'goose', 'tern']
\#Build a dictionary of frequencies.
freq $=$ $\qquad$ \#creates an empty dictionary
for name in names:
\# Already seen, so increment count by one.
if $\qquad$ in $\qquad$ : \# check for existence of name in dictionary freq
freq[name] $=$ freq[name] +1 :
\# Never seen before, so add to dictionary.
else:

$$
\text { freq[name] = } 1
$$

\# Display.
print (freq)
Q8 Assume that price_dict is a Python variable to which a dictionary literal has already been assigned, and that it currently contains at least 10 key-value pairs.
(a) write an expression whose value would be the number of key-value pairs in price_dict
(b) write an expression that would be the value corresponding to the key 'avocados' in price_dict
(c) write an expression that would be a list of all of the keys within price_dict
(d) write an expression that would be a list of all of the keys values within price_dict
(e) write a statement that would replace the current value of the key apples' in price_dict with 1.99

Q9 What is the purpose of range() function? Give one example.
Q10 Write a program to read a list of n integers and find their median.

## Subject: Informatics Practices

## Instructions:

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## Subject: Economics

Q1. How can externalities be a limitation of using Gross Domestic Product as an index of welfare?

Q2. Define money supply. What are it's main components?
Q3. Distinguish between domestic income and national income. When can domestic product be more than the national product?
Q4. Explain the basis of classifying goods into intermediate and final goods. Give suitable examples.

Q5. Give the meaning of factor income to abroad and factor income from abroad. Also give an example of each.
Q6. State whether the following is a stock or flow:
(a) Wealth, (b) Cement production, and (c) Saving of a household.

Q7. Are the following included in the estimation of National Income a country? Give reasons.
i. Bonus received by employees.
ii. Government expenditure on defence.
iii. Money sent by a worker working abroad to his family.

Q8. Are the following part of a country's net domestic product at market price? Explain
i) Net indirect tax
ii) Net export
iii) NFIA

Q9. Giving reasons classify the following into intermediate products and final products

1. Furniture purchased by a school.
2. Chalk, duster, etc, purchased by a school.

Q10. Giving reasons, explain the treatment assigned to the following which estimating national income.

## Subject: Biology

Q1. Write the location and functions of Myometrium and Endometrium.
Q 2 . Identify $\mathrm{A}, \mathrm{B}, \mathrm{C}$ and D with reference to gametogenesis in humans in the flow chart given below:


Q3. Draw and label the parts of the head region only of a human sperm.
Q4. What is colostrum? Why is it essential for the new born babies?
Q5. Bring out the differences between secondary and tertiary follicles.
Q6. Differentiate between the major structural changes in the human ovary during the follicular and luteal phases of the menstrual cycle.

Q7. Write the effect of high concentration of LH on a mature Graafian follicle.
Q8. Why is parturition called neuroendocrine mechanism? Explain.
Q9. (a) Draw a sectional view of seminiferous tubule of a human. Label the following cells in the seminiferous tubule:
(i) Cells that divide by mitosis to increase their number
(ii) Cells that undergo meiosis I
(iii) Cells that undergo meiosis II
(iv) Cells that help in the process of spermiogenesis.
(b) Mention the role of Leydig cells.

Q10. (a) Read the graph given above and correlate the uterine events that take place according to the hormonal levels on:
(i) 6 - 15 days
(ii) $16-25$ days
(iii) 26 - 28 days (if the ovum is not fertilised).
(b) Specify the sources of the hormones mentioned in the graph.

$(2.5+2.5=5)$

## Subject: Mathematics

Q1. If. $\mathrm{A}=\left[\begin{array}{cc}3 & 1 \\ -1 & 2\end{array}\right]$, show that $\mathrm{A}^{2}-5 \mathrm{~A}+7 \mathrm{I}_{2}=\mathrm{O}$

Q2. If $\mathrm{A}=\left[\begin{array}{ll}1 & 2 \\ 2 & 1\end{array}\right], \mathrm{f}(\mathrm{x})=\mathrm{x}^{2}-2 \mathrm{x}-3$, show that $\mathrm{f}(\mathrm{A})=0$

Q3. If $A=\left[\begin{array}{c}-1 \\ 2 \\ 3\end{array}\right]$ and $B=\left[\begin{array}{lll}-2 & -1 & -4\end{array}\right]$, verify that $(A B)^{T}=B^{T} A^{T}$.

Q4. If $A=\left[\begin{array}{cc}\cos \alpha & \sin \alpha \\ -\sin \alpha & \cos \alpha\end{array}\right]$, then verify that $A^{T} A=I_{2}$.

Q5. Express the matrix $A=\left[\begin{array}{lll}3 & 2 & 3 \\ 4 & 5 & 3 \\ 2 & 4 & 5\end{array}\right]$ as the sum of a symmetric and a skew-symmetric matrix. 2

## CASE STUDY:

A manufacturer produces three stationery products Pencil, Eraser and Sharpener which he sells in two markets. Annual sales are indicated below:


| Market | Products (in numbers) |  |  |
| :---: | :---: | :---: | :---: |
|  | $\underline{\text { Pencil }}$ | Eraser | Sharpener |
| A | 10,000 | 2000 | 18,000 |
| B | 6000 | 20,000 | 8000 |

If the unit Sale price of Pencil, Eraser and Sharpener are Rs. 2.50, Rs. 1.50 and Rs. 1.00respectively, and unit cost of the above three commodities are Rs. 2.00, Rs. 1.00 and Rs. 0.50 respectively, then Based on the above information answer the following:

1. Total revenue of market A
a. Rs. 64,000
b. Rs. 60,400
c. Rs. 46,000
d. Rs. 40600
2. Total revenue of market B
a. Rs. 35,000
b. Rs. 53,000
c. Rs. 50,300
d. Rs. 30,500
3. Cost incurred in market A
a. Rs. 13,000
b. Rs. 30,100
c. Rs. 10,300
d. Rs. 31,000
4. Profit in market A and B respectively are
a.(Rs. 15,000, Rs. 17,000)
b.(Rs. 17,000 , Rs. 15,000 )
c.(Rs. 51,000 , Rs. 71,000)
d.( Rs. 10,000, Rs. 20,000)
5. Gross profit in both market
a. Rs. 23,000
b. Rs. 20,300
c. Rs. 32,000
d. Rs. 30,200

## Subject: Physical Education

## Note: Write answers in your notebook.

1. In Kyphosis, the remedial exercise is.....
(a) Jogging
(b) Running
(c) Bend your head backward (d) Bend your head forward
2. Scoliosis is a postural deformity which is related to.....
(a) Muscles
(b) Neck
(c) Spine
(d) Shoulder
3. Kyphosis is a postural deformity of spine in....
(a) Lumber
(b) Cervical
(c) Thorasic
(d) None of the above
4. Define and classify 'fixtures. Draw a league fixture for 16 teams.
5. What do you mean by combination tournament? Discuss league cum knock-out and knock-out cum league with the help of examples.
6. What do you mean by planning? Elucidate the objectives of planning in sports in detail. 5
7. What is a league tournament? Draw a fixture of six teams using round robin method. 5
8. Explain the causes, precautions and remedies of knock-knee. 5
9. Discuss some exercises for the remedy of round shoulders. 5
10. Explain any five postural deformities with their correct measures. 5

## Subject: Psychology

Q1. Intelligence tests provide a $\qquad$ of a person's general cognitive competence including the ability to profit from schooling.

Q2. Aptitude tests are used to predict what an individual will be able to do if given proper
$\qquad$ and $\qquad$ .1

Q3. Define intellectual deficiency.

Q4. What is Buddhi? 2
Q5. State the characteristics of individuals with type A personality. 2

Q6. You have assessed 20 peers of your class for mathematical comprehension/ knowledge. Create a distribution for the results you are most likely to expect. What is the shape of this distribution? 2

Q7. How can a faulty behaviour be modified with token economy? Elucidate with the help of an example.

Q8. The evidence for hereditary influences on intelligence comes mainly from studies of twins and adopted children. With respect to the role of environment, studies have reported that as children grow in age, their intelligence level tends to move closer to their adopted parents. Children from disadvantaged home adopted into families of higher socio-economic status exhibit in a large increase in their intelligence scores. There is evidence that environmental deprivation lowers intelligence while rich nutrition, good family background and quality schooling increases intelligence. There is a general consensus among psychologists that intelligence is the product of complex interaction of heredity and environment. Heredity can be viewed as something that sets a range within which an individual's development is shaped by the support and opportunities of the environment. Studies have also shown correlation between twins reared together (.60) and siblings reared together (.50) and sibling reared apart (.25) to share intelligence.
i. As children grows in age, their $\qquad$ tends to closer to their adoptive parents.
a. Moral value
b. Mental level
c. Intelligence level
d. All the above
ii. Environmental deprivation lowers $\qquad$
a. Insight Ness
b. Intelligence
c. wisdom
d. None of the above
iii. The evidence for the hereditary influences on intelligence comes mainly from
a. studies of twins
b. studies of adopted children
c. both a \& b
d. neither a \& nor b
iv. children from disadvantaged homes adopted into families of higher socio-economics status exhibit a large increase in their $\qquad$ _.
a. educational status
b. intelligence scores
c. social status
d. All the above

Q9. Rehaan is good at solving mathematical problems. Which intelligence according to Gardener would he excel in? Write the key characteristics of multiple intelligence.

