St. Mary's School, Dwarka
Holiday Homework
Std. XI
Week 3
Worksheet 3

Subject: English

General Instructions: Attempt questions based on specific instructions for each section.

SECTION A- Reading

Q1. Read the following passage carefully.

1. The seasonal problem of water taps running dry is plaguing most of our major cities. With the bigger rivers flowing in trickles, ponds and wells have been reduced to clay -pits, village women in remote areas have to fetch every drop of water for drinking, cooking, washing and so on, across large distances. This has only worsened a perennial problem, that of widespread pollution of water, rendering it unfit for human consumption. The monsoons and the floods will not solve this problem.

2.The Delhi Government is seriously worried about the threat to civic health posed by the polluted waters of the Yamuna. Two main tanks are to be set up to treat sewage. At present, only 60 percent of the 200 million gallons of the city's sewage receives any kind of treatment before it is dumped into the river which supplies water not only to this city but to innumerable towns and villages downstream. The Ganga, the Yamuna and the Kaveri. In fact, all our important rivers serving many urban conglomerations, are fast becoming a major source of diseases.

3.A comprehensive bill introduced in the Parliament recently, envisages the setting up of central and state boards for the prevention and control of water pollution. But it will obviously take some time before legislation is passed and effectively implemented. Meanwhile, the problem continues to swell. According, to a survey of eight countries conducted a couple of years ago, 90 percent of all child deaths were due to water-borne diseases. It is the same unchanged story today.

4.In a country like India, a burgeoning population continues to use the open countryside as a lavatory. This means that with every dust storm and rain, human excreta laden with germs and parasites find their way to ponds, shallow wells and even streams and rivers. Only 18 percent of the rural folk have access to potable water.

5.A new threat that has already assumed alarming proportions is industrial waste which is generally dumped untreated into the nearest river. For Instance, for every kilogram of process hide, 30-40 liters of foul-smelling, wastewater has to be disposed off. There are at least 900 licensed tanneries

in the organizedsector. Putrefied paper and jute waste, metallic salts and corrosive acids all find their way to the rivers of India.

6. It is important not only to make new laws to ensure the purity of water, but also to realize the urgency of implementing them ruthlessly if we are to avoid a national health disaster cutting across the barrier between towns and the countryside.

Based on your understanding, answer the questions given below: (1x5=5)

i. **What are the perennial problems plaguing our cities?**

ii State the reasons mentioned in Paragraph 2 that are threatening the residents of Delhi.

1. Zero groundwater level
2. Lack of potable water
3. Lack of the treatment of sewage
4. Yamuna is over-polluted
5. Open untreated water

A. 1,3 and 5
B. 3 and 4
C. 1.2 and 6
D. 3.5 and 4

iii Supply 1 point to justify the following.

The most child deaths in India are due to lack of potable water.

iv**. Evaluate the most appropriate purpose of the bill mentioned in the passage:**

A. It creates financial scope for water treatment facilities
B. It creates Central and State boards to control water pollution.
C. It looks into the effective implementation of legislation.
D. It looks into the proper treatment of water bodies.

v. Select the cause NOT MENTIONED in the passage which poses new threat to the nearby rivers.

A. Regular disposal of wastewater from the industries.
B. Presence of licensed tanneries in the organized sector.
C. Disposal of putrefied paper, jute waste and corrosive acids.
D. Foul smelling untreated wastewater from homes and offices.

SECTION B--Literature

Answer the following questions in 20 to 30 words. (2x2=4)

Q2. Why did the narrator become curious about the possessions of her mother?
Q3. What was the happiest moment of the day for the grandmother?

Answer the following questions in 60 to 80 words. **(3x2=6)**

Q4. "Religion was the dominant feature of her life." Comment on this statement with regard to Khushwant Singh's grandmother as discussed in the lesson '**The Portrait of a Lady'**.

Q5. What reason did Mrs. Dorling give to the narrator's mother to take her belongings? How does the mother come to know about Mrs. Dorling and her address?

SECTION C—**Grammar** **(1x2=2)**

Q6. Select the option that identifies the error and supplies the correction for the following line, from a news report:

Climate changes is one of the most contested debates.

OPTION	**ERROR**	**CORRECTION**
A	Climate	Climates
B	changes	change
C	one	a
D	most	mostly

Q7. Select the correct option to complete the dialogue between Deepak and Sunil.

Deepak: How are you?

Sunil: I'm good. What about you?

Deepak: I'm well physically but not mentally.

Deepak asked Sunil ……. . Sunil replied that he was good and continued to ask about Deepak's well-being. Deepak said that he was physically well but not mentally fit.

A. how he was

B. how was he?

C. how did he do?

D. how does he do?

SECTION D--Writing

Q8. You are the Managing Director of Varun Enterprises, a leading garments export house. You need accountants for your Meerut office. Write an advertisement for the 'Situation Vacant' column of a local daily. **(2)**

Q9. Due to the globalization of the food industry and fast food culture, traditional healthy diets are increasingly being replaced by unhealthy junk food containing artificial additives and chemicals. Write an article in 150-200 words for a national daily on the need for inculcating healthy dietary habits. **(4)**

Q10.Book Trailor- Read a book by your favourite author and make a short 1-minute video to launch it. **(2)**

Subject: Physics

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 notebook.
- Attempt the questions keeping in mind the weightage of each question

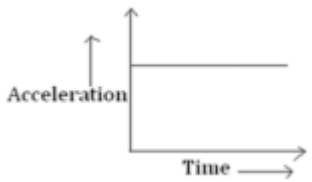
1. The density of a material in CGS system of units is 4 g/cm^3. In a system of units in which unit of length is 10 cm and that of mass is 100 g, the density of the material will be

(a) 0.4 (b) 40 (c) 400 (d) 0.04 1

2. What is the angle between two vectors $\vec{A}$ *and* $\vec{B}$ if the ratio of their dot product to cross product is √3 1

3. The velocity 'v' of water waves depends on the wavelength 'λ', density of water 'p' and the acceleration due to gravity 'g'. Deduce by the method of dimension the relationship between these quantities. 2

4. A particle starts from rest, and its acceleration (a) plotted versus time (t) is shown in the given figure. Plot the corresponding graphs for



(i) Velocity (v) versus time (t)

(ii) Displacement (s) versus time (t) 3

5. Find the instantaneous velocity and instantaneous acceleration of the particle at t = 2 s when position of a particle is given by $\vec{r} = (3t\hat{\imath} - 2t^2\hat{\jmath} + 4\hat{k})$ m. 2

6. If $\vec{A} = \hat{\imath} + 2\hat{\jmath} - \hat{K}$ and $\vec{B} = -\hat{\imath} + \hat{\jmath} + 2\hat{K}$, find the angle between the both the vectors. 2

7. Derive by the method of dimensions, an expression for the volume of a liquid flowing out per second through a narrow pipe. Assume that the rate of flow of liquid depends on 3

(i) the coefficient of viscosity 'η' of the liquid

(ii) the radius 'r' of the pipe and

(iii) the pressure gradient (p/L) along the pipe. Take K = π/8

8. On a two – lane road, car A is travelling with a speed of 36 kmh^{-1}. Two cars B and C approach car A in opposite direction with a speed of 54kmh^{-1} car. At a certain instant, when the distance AB is equal AC, both being 1km, B decides to overtake A before C does. What minimum acceleration of car B is required to avoid an accident? 3

9. A car travelling at a speed of 20 ms^{-1} due north along the highway makes a right turn on to a side road that heads due east. It takes 50s for the car to complete the turn. At the end of 50 seconds, the car

has a speed of $15ms^{-1}$ along the side road. Determine the magnitude of average acceleration over the 50 second interval. 3

10. (a) A ball is projected vertically upward with a velocity 'u' from ground. It t is the time taken by ball to reach the maximum height (H), then what will be the height of ball from ground after time $\frac{7}{5}t$? 5

(b) A projectile has a range of 50m and reaches a maximum height of 10m. Calculate the angle at which the projectile is fired.

(c) From a height, a body is projected horizontally with speed x . It reaches ground in time t. If the body falls freely under gravity from same height the time taken to reach the ground will be

Subject: Chemistry

Q 1: Define the term "mole" and state Avogadro's number. 2

Q 2: Calculate the number of moles in 50 grams of sodium hydroxide (NaOH). 2

Q 3: What is the empirical formula of a compound containing 40% carbon, 6.7% hydrogen, and 53.3% oxygen? 2

Q 4: What is the volume occupied by 2 moles of hydrogen gas (H2) at standard temperature and pressure (STP)? 2

Q 5: What is the relationship between the empirical formula and the molecular formula of a compound? 2

Q 6: What is the concept of molar mass? How is it calculated? 3

Q 7: Explain the difference between empirical formula and molecular formula with an example. 3

Q 8: Calculate the percentage composition of magnesium sulfate (MgSO4). 3

Q 9: Define molarity and calculate the molarity of a solution containing 5 moles of solute in 2 liters of solution. 3

Q 10: Explain the difference between atomic mass and molar mass. 3

Subject: Mathematics

Q.1) If $(x + iy)^{1/3} = a + ib$, then find the value of $\frac{x}{a} + \frac{y}{b}$. (2)

Q.2) Two finite sets have m and n elements. The number of elements in the power set of first set is 56 more than the total number of elements in the power set of second set. Find the values of m and n. (2)

Q.3) Evaluate $\sqrt{2 - 2\sqrt{3}i}$ (2)

Q.4) List the elements of the following sets: (2)

(i) $\{ x: x \in Z \text{ and } x \leq -5\} \cap \{ x : x \in Z \text{ and } x \geq -5 \}$

(ii) $\{x : x + 2 > 3\} \cap \{ x : x < 5\}$ where $x \in N$.

Q.5) Find the radian measures corresponding to the following degree measures: (2)

(i) 104°36’ (ii) 270°

Q.6) If $a^2 + b^2 = 1$, then prove that $\frac{1+b+ia}{1+b-ia} = b + ia$. (3)

Q.7) Prove that $\frac{\tan(A+B)}{\cot(A-B)} = \frac{\sin^2 A - \sin^2 B}{\cos^2 A - Cos^2 B}$ (3)

Q.8) Convert $1 + \cos x + i \sin x$ into polar form. (3)

Q.9) The combined membership of the Mathematics Association and Science Club is 122. What is the membership of Science club if 50 are known to be members of Mathematics association and 28 are members of both the organisations? (3)

Q.10) Write the following sets in the roster form: (1+2)

(i) A = {x: x is a positive factor of a prime number p}

(ii) Y = {x: x is a positive factor of the number $2^{p-1}(2^p - 1)$ where 2^{p-1} is a prime number}

Subject: Computer Science and Informatics Practices

Q1 What does a cross platform language mean? 1

Q2 Following set of commands are executed in shell, what will be the output? 1

```
>>>str="hello python"
>>>str *2
```

Q3 Which of the following identifiers are invalid? Give reason for its invalidity. 1x3=3

a) 90_a = 1 b) a-6 = 1 c) break = 7

Q4 Convert the following hexadecimal numbers into decimal numbers: 2

a) ABCDEF b) BCA

Q5 Write the purpose of id( ) and type ( ) functions in Python. 2

Q6 Add the following binary numbers: 2

a) 11001111 +1010110 b) 110010101+10100100

Q7 Convert the following decimal numbers into octal numbers: 2

a) 56 b) 782

Q8 Convert the following octal numbers to binary numbers: 2

a) 743 b) 612

Q9 What is the difference between keywords and identifiers? 2

Q10 What are the advantages and disadvantages of working in the interactive mode in Python? 2

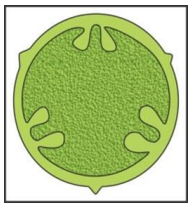
Subject: Biology

Q1. Mention the modified function(s) performed by:

(a) Underground stem of potato
(b) Axillary bud of watermelon. (2)

Q2. What is venation? Name its two kinds. (2)

Q3. Name the type of placentation shown in the given figures (i) and (ii). Give one example of each type.

(i)  (ii) 

Q4. What are coleoptile and coleorhiza? (2)

Q5. Make a simple diagram of a flowering plant and show/label its different parts. (3)

Q6. Draw a labelled diagram to show the different regions of a root. (3)

Q7. What are pneumatophores? How do they help the plant? Name an example. (3)

Q8. Describe the modification of stems in:

(a) Chrysanthemum (b) Eichhornia (c) Jasmine (3)

Q9. (a) Differentiate between a dicot (gram) seed and a maize grain.

(b) (i) What is a floral diagram?

(ii) Decipher the representation $\overset{\frown}{C_{(5)}}\ A_5$.

(c) Write the floral formula of an actinomorphic, bisexual, hypogynous flower with five united sepals, five free petals, five free stamens and two united carpels with superior ovary and axile placentation.

(2+2+1 = 5)

Q10. What is meant by modification of root? What type of modification of root is found in the :

(a) Banyan tree (b) Turnip (c) Mangrove tree? (1.5+1.5 + 2 = 5)

Subject: Economics

Q1. Explain the factors affecting elasticity of demand. (2)

Q2. Write three exceptions of law of demand. (2)

Q3. What do you mean by consumer's equilibrium? Explain. (2)

Q4. A consumer has Rs 40 and both goods X and Y are priced at Rs 20 and are available in integer units, (a) Give the bundles that this consumer can afford (b) give the bundles that cost exactly Rs 40. (2)

Q5. Give reasons for the following statements: (2)

1) If the income of a consumer changes and prices of the two goods remain unchanged, a new budget line will be formed which will be parallel to the original line.

2) If the income of the consumer remains unchanged and if the price of goods X rises, intercept of the budget line of Y-axis will remain the same, but on the X-axis it will shift to the left.

Q6. Giving reasons, comment on the following statements: (3)

a)A consumer's equilibrium is always formed at a point on the given budget line.

b) A consumer's equilibrium will shift to a higher indifference curve with an increase in consumer's income.

Q7. Giving reasons, state why the following two conditions must be satisfied when a consumer is in equilibrium. (3)

a)A budget line must be tangent to an indifference curve.

b) Marginal rate of substitution must be diminishing.

Q8. Explain market rate of exchange. (3)

Q9. Derive the law of demand from the two commodity equilibrium condition "Marginal Utility = price ratio through utility approach". (3)

Q10. Describe the assumption which is made to determine the consumer's equilibrium position. (3)

Project Work

a)Make a project on OPEC. Follow the instructions given below
Guidelines for Project Work in Economics (Class XI) The objectives of the project work are to enable learners to: • probe deeper into theoretical concepts learnt in classes XI • analyse and evaluate real world economic scenarios using theoretical constructs and arguments • demonstrate the learning of economic theory • follow up aspects of economics in which learners have interest • develop the communication skills to argue logically

The expectations of the project work are that: • learners will complete Two projects • project should be of 3,500-4,000 words (excluding diagrams & graphs), preferably hand-written • it will be an independent, self-directed piece of study.

Scope of the project: Learners may work upon the following lines as a suggested flow chart: Choose a title/topic Collection of the research material/data Organization of material/data Present material/data Analysing the material/data for conclusion Draw the relevant conclusion Presentation of the Project Work 11

Expected Checklist: • Introduction of topic/title • Identifying the causes, consequences and/or remedies • Various stakeholders and effect on each of them • Advantages and disadvantages of situations or issues identified • Short-term and long-term implications of economic strategies suggested in the course of research • Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file • Presentation and writing that is succinct and coherent in project file • Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Subject: Psychology

Q1. Define the term 'objectivity'. 1

Q2. _____ pioneered both the development of statistic and the study of individual difference. 1

Q3. What is validity? 2

Q4. What are norms? 2

Q5. What is data? 2

Q6. What do you mean by standardization test? 2

Q7. Describe the quantitative method of analyzing data. 3

Q8. What is variable? Discuss different types of variables. 4

Q9. What is the different type of observation? 4

Q10. What are the various techniques to control relevant or extraneous variable? 4