



SelaQui

INTERNATIONAL SCHOOL

HOLIDAY HOMEWORK JUNE 2021-22

Class 11 Science

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PHYSICS (SIGNIFICANT FIGURE & DIMENSIONS, Motion in Straight line) CLASS – XI

HOLIDAY ASSIGNMENT

- The number of significant figures in 0.06900 is
a) 5 b) 4 c) 2 d) 3
- The sum of the numbers 436.32, 227.2 and 0.301 in appropriate significant figures is
a) 663.821 b) 664 c) 663.8 d) 663.82
- The mass and volume of a body are 4.237 g and 2.5 cm³, respectively. The density of the material of the body in correct significant figures is
a) 1.6048 g cm⁻³ b) 1.69 g cm⁻³ c) 1.7 g cm⁻³ d) 1.695 g cm⁻³
- The numbers 2.745 and 2.735 on rounding off to 3 significant figures will give
a) 2.75 and 2.74 b) 2.74 and 2.73 c) 2.75 and 2.73 d) 2.74 and 2.74
- The length breadth and thickness of a rectangular sheet of metal are 4.234 m, 1.005 m and 2.01 cm respectively. Give the area and volume of the sheet to correct significant figures.
- The mass of a box measured by a grocer's balance is 2.3 kg. Two gold pieces of masses 20.15 g and 20.17 g are added to the box. What is (a) the total mass of the box (b) the difference in the masses of the pieces to correct significant figures ?
- Round off the following numbers as indicated
i) 18.35 upto 3 digits ii) 143.45 upto 4 digits
iii) 18967 upto 3 digits iv) 12.653 upto 3 digits
v) 248337 upto 3 digits vi) 321.135 upto 5 digits
vii) 101.55 x 10⁶ upto 4 digits viii) 31.325 x 10⁻⁵ upto 4 digits
- Solve the following and express the result to an appropriate number of significant figures
i) Add 62g, 4.33 g and 17.456 g.
ii) Subtract 63.54 kg from 187.2 kg
iii) 75.5 x 125.5 x 0.51
iv)
$$\frac{2.13 \times 24.78}{458.2}$$

v)
$$\frac{2.51 \times 10^{-4} \times 1.81 \times 10^7}{0.4463}$$
- Each side for a cube is measured to be 7.203 m. What are the total surface area and the volume of the cube to appropriate significant figures?
- The length and the radius of a cylinder measured with slide calipers are found to be 4.54 cm and

- 1.75 cm respectively. Calculate the volume of the cylinder.
11. 5.74 g of a substance occupies 1.2 cm^3 . Express its density keeping significant figures in view.
 12. Subtract 2.5×10^4 from 3.9×10^5 with due regard to significant figures.
 13. Which of the following pairs of physical quantities does not have same dimensional formula?
 - a) Work and torque
 - b) angular momentum and Planck's constant
 - c) Tension and surface tension
 - d) Impulse and linear momentum
 14. On the basis of dimensions, decide which of the following relations for the displacement of a particle undergoing simple harmonic motion is not correct:
 - a) $y = a \sin 2\pi t / T$
 - b) $y = a \sin \pi t$
 - c) $y = \frac{a}{T} \sin (\pi t)$
 - d) $y = a \sqrt{2} \left(\sin \frac{2\pi t}{T} \cos \frac{2\pi t}{T} \right)$
 15. If P, Q, R are physical quantities, having different dimensions, which of the following combinations can never be a meaningful quantity?
 - a) $(P - Q) / R$
 - b) $PQ - R$
 - c) PQ / R
 - d) $(PR - Q^2) / R$
 - e) $(R + Q) / P$
 16. Photon is quantum of radiation with energy $E = h\nu$, where ν is frequency and h is Planck's constant. The dimensions of h are the same as that of
 - a) Linear impulse
 - b) Angular impulse
 - c) Linear momentum
 - d) Angular momentum
 17. If the unit of force is 100 N, unit of length is 10 m and unit of time is 100 s, what is the unit of mass in this system of units?
 18. Give an example of
 - a) A physical quantity which has a unit but no dimensions.
 - b) A physical quantity which has neither unit nor dimensions.
 - c) A constant which has a unit.
 - d) A constant which has no unit
 19. The displacement of a progressive wave is represented by $y = A \sin (\pi t - kx)$, where x is distance and t is time. Write the dimensional formula of (i) m and (ii) k .
 20. A new system of units is proposed in which unit of mass is $\alpha \text{ kg}$, unit of length $\beta \text{ m}$ and unit of time $\gamma \text{ s}$. How much will 5 J measure in this new system?
 21. A new unit of length is chosen such that the speed of light in vacuum is unity. What is the distance between the sun and the Earth in terms of the new unit if light takes 8 min and 20 s to cover this distance?
 22. A calorie is a unit of heat or energy and it equals about 4.2 J where $1 \text{ J} = 1 \text{ kg m}^2 \text{ s}^{-2}$. Suppose we employ a system of units in which the unit of mass equals $\alpha \text{ kg}$, the unit of length equals $\beta \text{ m}$, the unit of time is $\gamma \text{ s}$.

Show that a calorie has a magnitude $4.2 \alpha^{-1} \beta^{-2} \gamma^2$ in terms of the new units.

23. Find the dimensions of a/b in the equation $F = a\sqrt{x} + bt^2$, where F is force, x is distance and t is time.
24. The Vander Wall's equation for a gas is $(e + \frac{a}{V^2})(V - b) = RT$ Determine the dimensions of a and b . Hence write the SI units of a and b .
25. If force (F), length (L) and time (T) are chosen as the fundamental quantities, then what would be

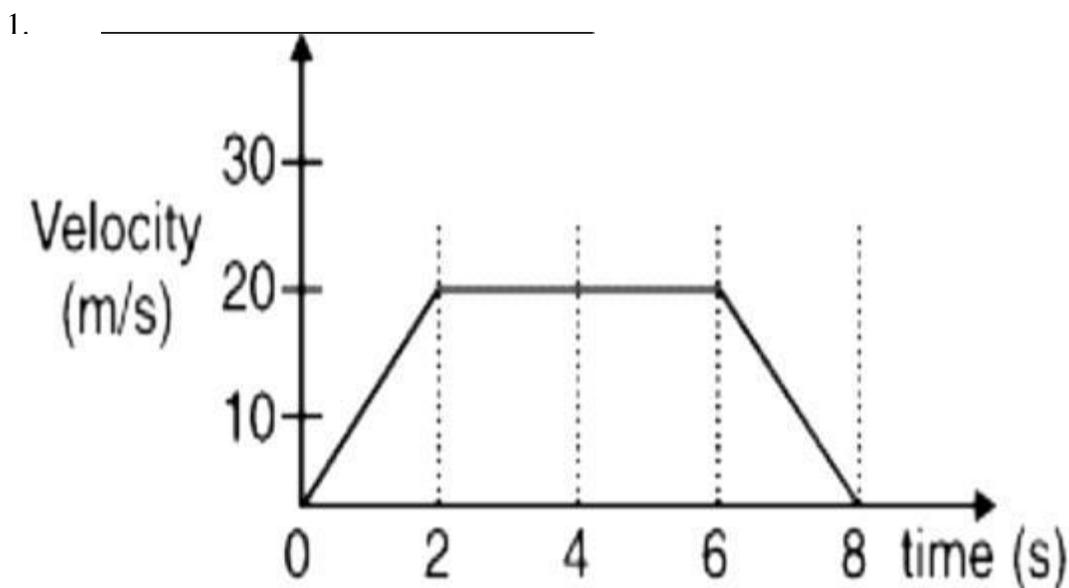
the dimensional formula for density?

26. In the expression $P = EI^2N^{-5}G^{-2}$; E, m, I and G denote energy, mass angular momentum and gravitational constant, respectively. Show that P is a dimensionless quantity.

MOTION IN STRAIGHT LINE

1. Under what condition the average velocity equal to instantaneous velocity? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
2. Give an example when a body moving with uniform speed has acceleration. $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
3. What is the average value of acceleration vector in uniform circular motion? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
4. What is the angular velocity of the hour hand of a clock ? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
5. Velocity – time graph of any object is shown in fig .Draw acceleration – time graph for this motion $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
6. The position coordinate of a moving particle is given by $x=6+18t+9t^2$ (x in meter, t in seconds), what is its velocity at $t=2s$? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
7. For an object projected upward with a velocity V_0 , which comes back to the same point after some time, draw
 - a. Acceleration-time graph $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
 - b. Position-time graph $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
 - c. Velocity-time graph $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
8. What is relative velocity in one dimension, if V_A and V_B are the velocities of the body A and B respectively then prove that $V_{AB}=V_A-V_B$? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
9. Derive the relation between linear velocity and angular velocity. $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
10. A driver take 0.20 second to apply the breaks (reaction time). If he is driving car at a speed of 54 kmh^{-1} and the breaks cause a deceleration of 6.0 ms^{-2} . Find the distance travelled by car after he $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$ sees the need to put the breaks. $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$

11. A ball thrown vertically upwards with a speed of 19.6 ms^{-1} from the top of a tower returns to the earth in 6s. Find the height of the tower ($g = 9.8 \text{ m/s}^2$)
12. A man can swim with a speed of 4 m^{-1} in still water .How long does he take to cross the river 1 km wide , if the river flows steadily at 3 kmh^{-1} and he makes his strokes normal to the river current ? How far from the river does he go , when he reaches the other bank ?
13. (a) With the help of a simple case of an object moving with a constant velocity show that the area



under velocity – time curve represents over a given time interval.

- (b) A car moving with a speed of 126 km/h is brought to a stop within a distance of 200 m . Calculate the retardation of the car and the time required to stop it.

14. Define centripetal acceleration. Derive an expression for the centripetal acceleration of a body moving with uniform speed v along a circular path of radius r . explain how it acts along the radius towards the centre of the circular path.
15. Two towns A and B are connected by a regular bus service with a bus leaving in either direction every T min. A man cycling with a speed of 20 kmh^{-1} in the direction A to B notices that a bus goes past him every 18 min in the direction of his motion, and every 6 min in the opposite

direction. What is the period T of the bus service and with what speed do the buses ply of the road? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$

16. A ball is thrown vertically upward with a speed of 25 m/s.
- How high does it rise? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
 - How long does it take to reach its highest point? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
 - How long does the ball take to hit the ground after it reaches its highest point? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
 - What is its velocity when it returns to the level from which it started? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
17. Rain is falling vertically with a speed of 25 ms^{-1} . A woman rides a bicycle with a speed of 8 ms^{-1} in the north to south direction. What is the direction in which she should hold her umbrella to protect herself from the rain? $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
18. Derive equations for uniformly accelerated motion using graphical method. $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$
19. Draw velocity- time graph of uniformly accelerated motion in one dimension. From the velocity – $\left[\begin{array}{l} \text{L} \\ \text{SEP} \end{array} \right]$ time graph of uniform accelerated motion, deduce the equations of motion in distance and time.

Chemistry:**Summer Break Assignment****A) Ratios and amount of substance****Learning outcomes**

After completing this worksheet, you should be able to:

- use ratios from balanced chemical equations to calculate reacting masses
- state the answers to calculations to an appropriate number of significant figures.

Questions

1	<p>Sodium hydrogen carbonate can be neutralised by an excess of sulfuric acid as shown by the equation below:</p> $2 \text{NaHCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2 \text{H}_2\text{O} + 2 \text{CO}_2$ <p>a Calculate the number of moles in 105 g of NaHCO_3</p> <p>b Hence calculate the amount in moles of Na_2SO_4 which will be produced by the neutralisation of this sample of NaHCO_3.</p> <p>c State the mass of Na_2SO_4 which will therefore be produced by this sample of NaHCO_3.</p>	3 points
2	<p>Lead nitrate will react with potassium iodide in a very unusual solid–solid reaction. The equation for the reaction is:</p> $\text{Pb}(\text{NO}_3)_2 + 2 \text{KI} \rightarrow \text{PbI}_2 + 2 \text{KNO}_3$ <p>Calculate the mass of lead iodide that will be produced by the reaction of 14.1 g of potassium iodide with an excess of lead nitrate.</p>	3 points
3	<p>Solid copper can be prepared from copper oxide by its reaction with ammonia. The equation for the reaction is:</p> $3 \text{CuO} + 2 \text{NH}_3 \rightarrow 3 \text{Cu} + \text{N}_2 + 3 \text{H}_2\text{O}$ <p>Calculate the mass of copper oxide which would react with 0.425 g of ammonia.</p>	3 points
4	<p>Tin chloride exists as a hydrated salt. It can be dehydrated on heating:</p> $\text{SnCl}_2 \cdot x\text{H}_2\text{O} \rightarrow \text{SnCl}_2 + x \text{H}_2\text{O}$ <p>If during the dehydration of a sample of hydrated tin chloride, 118.6 g of anhydrous tin chloride and 22.5 g of water are produced, calculate the value of x, and hence state the formula of hydrated tin chloride.</p>	3 points

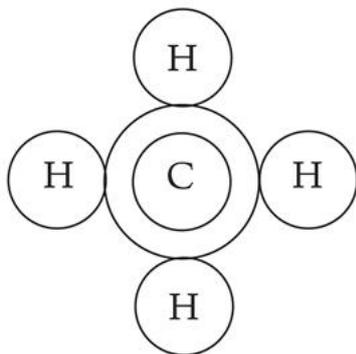
B) Ionic and covalent bonding**Learning outcomes**

After completing this worksheet, you should be able to:

- describe the bonding in ionic and covalent compounds and the properties resulting from these
- compare the bonding in ionic compounds and simple molecular substances.

Questions

<p>1</p>	<p>Ionic bonding involves the transfer of electrons. The electrons are transferred from metal atoms to non-metal atoms. Upon transfer, both sets of ions have a full outer shell of electrons. Ionic bonding is therefore the electrostatic attraction between the oppositely charged ions.</p> <p>a Sodium reacts with chlorine to form the ionic compound sodium chloride. Construct a balanced symbol equation for this reaction.</p> <p>b Copy and complete the dot-and-cross diagram given below to show the sodium ions and chloride ions in this compound.</p> <div style="text-align: center;"> </div> <p>c Explain why sodium chloride has a high melting point.</p> <p>d Explain why solid sodium chloride does not conduct electricity.</p> <p>e Explain why molten sodium chloride does conduct electricity.</p>	<p><i>10 points</i></p>
<p>2</p>	<p>Covalent bonding occurs between non-metal atoms. The atoms share pairs of electrons so that all the atoms have a full outer shell of electrons. Carbon, for example, reacts with hydrogen to form methane, CH₄.</p> <p>a Construct a balanced symbol equation for the formation of methane from carbon and hydrogen.</p> <p>b Copy and complete the dot-and-cross diagram given below to show the bonding in a molecule of methane, CH₄.</p>	<p><i>8 points</i></p>



c Explain why methane **does not conduct** electricity.

d Compare the bonding in **ionic compounds** and in simple molecular substances.

C) Research activity

Research, reading and note making are essential skills for high school chemistry study. For the following task you are going to produce '[Cornell Notes](#)' to summarise your reading.

Question (12 points)

For one of the following topics, you are going to use the resources to produce one page of Cornell style notes. Use the links to take you to the resources.

Topic 1: The Science of NASCAR

Available at:

<https://www.acs.org/content/dam/acsorg/education/resources/highschool/chemmatters/articlesbytopic/thermochemistry/chemmatters-feb2007-nascar.pdf>

Topic 2: Hollywood's Special Effects – How did they do that?

Available at:

<https://www.acs.org/content/dam/acsorg/education/resources/highschool/chemmatters/articlesbytopic/thermochemistry/chemmatters-dec2009-hollywood.pdf>

Topic 3: The Big Reveal – What's behind Nutrition Labels?

Available at:

<https://www.acs.org/content/dam/acsorg/education/resources/highschool/chemmatters/videos/chemmatters-dec2012-nutrition-labels.pdf>

D) Art integrated activity

You need to carry out *one of the following* to showcase your understanding of the concept through the medium of diverse art forms.

Art Form	Project Title	Project Description	Rubrics
Infographic Making	Insights from Laws of Chemistry	<p>Create two infographics - One on <i>Laws of Chemical Combination</i> and the other on <i>Stoichiometric Calculations with molarity, limiting reagent, etc.</i></p> <p>Samples of infographics can be found here and a nice place to create infographics is at https://piktochart.com/formats/infographics/</p>	Will be assessed on Creativity and Application – <i>applies ideas to develop original piece of art</i>
Culinary Art	Appealing Atoms	<p>Use either available ingredients of recipes or prepare a recipe and present them in a manner to depict the following</p> <ul style="list-style-type: none"> • Thomson’s Plum-Pudding Model of the Atom • Rutherford’s Model of the Atom • Bohr Model of the Atom <p>Document the process by taking photographs before, during and after the presentation to depict the above models.</p> <p><i>Label the photographs and identify the different components, i.e., electrons, protons, neutrons, nucleons, nucleus, etc.</i></p>	Will be assessed on Creativity and Craftsmanship & neatness
Sketching	Summary of Some Basic Concepts of Chemistry	<p>Create a sketch note on paper of the entire chapter of Some Basic Concepts of Chemistry.</p> <p>Remember to take photographs of the completed sketch as well.</p>	Will be assessed on Creativity and Application – <i>applies ideas to develop original piece</i>

			<i>of art</i>
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The *grade descriptors* corresponding to the rubrics given above are provided below.

Parameters	Exemplary	Proficient	Evolving	Beginning	Nascent
<i>Application – applies ideas to develop original piece of art</i>	The artwork is original and shows application of innovative and unique ideas.	The artwork shows quite a few innovative and original ideas.	The artwork shows little evidence of original and innovative ideas.	The artwork scarcely shows original and innovative ideas.	The artwork lacks originality in ideas.
<i>Creativity</i>	Artwork is completely unique and shows unconventional , innovative thinking in form, style, content.	Artwork has considerable innovative features in form, style, content.	Artwork has quite a few instances of new form, style, content.	Artwork has scarce instances of new form, style, content.	Artwork has only cliched form, style, content.
<i>Craftsmanship & neatness</i>	Demonstrates unique and innovative composition, colors, and neatness.	Demonstrate s effective composition, colors, and neatness.	Demonstrate s some instances of composition, colors, and neatness.	Demonstrate s basic composition, colors and neatness and can be improved in terms of neatness.	Needs improvement in composition, colors and neatness and needs to be reworked.

Physical Education:

1. **Kindly involve in physical activities of your choice for atleast 30 mins daily. Refer following links for workout-**
 - a. **CARDIO-**
<https://www.youtube.com/watch?v=vI1Yf-MBczI>
 - b. **STRENGTH-** <https://www.youtube.com/watch?v=vI1Yf-MBczI>
 - c. **FLEXIBILITY-** <https://www.youtube.com/watch?v=qULTwquOuT4>
 - d. **BREATHING EXERCISES-**
<https://www.youtube.com/watch?v=Q6-ft6liSI4>
 - e. **CORE STRENGTH-**
<https://www.youtube.com/watch?v=N5ViYeGJOCA>

2. **Complete one project on Sport/Game of your choice in a file including following points-**
 - a. **History of Sport (Indian and International)**
 - b. **Introduction of Sport**
 - c. **Rules and regulations/ Laws of Sport**
 - d. **Basic Skills of Sport**
 - e. **Measurement and markings of court/field**
 - f. **Famous personalities (National and international)**
 - g. **Awardees of sport**

*******STAY HEALTHY STAY FIT*******

English:

Instructions -

Run your assignment through

a. Grammarly

b. duplichecker.com and attach the report prior to submission.

Points 1 – 3 require research.

1. Read Maus. Analyse the following ideas in a 1000-word essay:

The book has been uploaded in the Spring 2021 folder.

- a. Historical background
- b. Use of artistic choice of animals,
- c. Black and white style,
- d. Storytelling by the author's father,
- e. The graphic novel medium
- f. Personal opinions, thoughts, reflections
- g. Compare and contrast it to Charlie Chaplin's Final Speech from The Great Dictator

<https://www.youtube.com/watch?v=J7GY1Xg6X20>

Hint: Supplementary readings can be found on Jstor.org

2. Read invisible Cities.

The book has been uploaded in the Spring 2021 folder.

Choose your favorite city and elaborate upon why it resonated with you. Do this in a 500-word paragraph.

Further elucidate upon a city (real or imagined) that you would like to visit, and why.

3. Movie review (1000 words) Midnight in Paris:

Pick out your favorite scene and explain why.

You are to analyze the

- a. cinematography,
- b. the ethical debate between the art and the creator (Woody Allen)
- c. character analysis.

4. Blackout poetry - Choose a page from the Arabian Nights, circle words to form a poem. Submit two such attempts. They should be coherent.

(Arabian Nights: <http://read.gov/books/pageturner/2003juv28132/#page/204/mode/2up>)

Examples:

<https://www.chino.k12.ca.us/cms/lib/CA01902308/Centricity/Domain/4327/Blackout%20Poetry.pdf>

5. Worksheet

Words are divided into different kinds or classes, called parts of speech, according to their use; that is, according to the work they do in a sentence. The parts of speech are eight in number.

A noun is a word used as the name of a person, place, or thing.

An adjective is a word used to add something to the meaning of a noun

A pronoun is a word used instead of a noun

A verb is a word used to express an action, event or state

An adverb is a word used to add something to the meaning of a verb

A preposition is a word used with a noun or a pronoun to show how the person or thing denoted by the noun or pronoun stands in relation to something else

A conjunction is a word used to join words or sentences

An interjection is a word which expresses some sudden feeling

Name the part of speech of each italicized word in the following sentences, giving in each case your reason for the classification.

1. *Still* waters run deep.
2. He *still* lives in that house.
3. *After* the storm comes the calm.
4. The *after*-effects of the medicine are bad.
6. It weighs *about* a pound.
7. He told us all *about* the battle.
8. He was only a yard *off* me.
9. Suddenly one of the wheels came *off*.
10. Muslims *fast* in the month of Ramzan.
11. He kept the *fast* for a week.
12. He is *on* the committee.
13. Let us move *on*.
14. Sit down and rest a *while*.
15. I will watch *while* you sleep.
16. They *while* away their evenings with books and games.

Mathematics:

Link for Math Homework Grade 11 shorturl.at/fkrET

Biology:

Art integrated project: Choose any one from the list of projects.

Projects	Art Form	Project Title	Project Description	Rubrics
1	Video/film making	Body fluids and circulation	Prepare a video on how different components of blood work and how does cardiac cycle works.	Will assess Creativity and Application – applies ideas to develop original piece of art
2	Documentation/record keeping	Herbarium	Prepare a herbarium of at least 10 plant species around you. The herbarium sheet must include the following information: 1. Name of the collector 2. Date of collection 3. Species identified 4. Classification of the plant species 5. Habitat description	Will assess craftsmanship, neatness, creativity

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Creativity	Artwork is completely unique and shows unconventional, innovative thinking in form, style, content.	Artwork has considerable innovative features in form, style, content.	Artwork has quite a few instances of new form, style, content.	Artwork has scarce instances of new form, style, content.	Artwork has only cliched form, style, content.
Craftsmanship & neatness	Demonstrates unique and innovative composition, colors, and neatness.	Demonstrates effective composition, colors, and neatness.	Demonstrates some instances of composition, colors, and neatness.	Demonstrates basic composition, colors and neatness and can be improved in terms of neatness.	Needs improvement in composition, colors and neatness and needs to be reworked.

1. Prepare an investigatory project on any of the given topics:
 - i. New discoveries in the field of medicines, genetics, or biotechnology
 - ii. Cancer a deadly disease-the preventive and protective measures
2. What are the main components of a Prokaryotic cell? Where do you find plasmids? Give 1 function of plasmid.
3. In a typical prokaryotic cell, explain the structure and function of each of the following:
 - (i) Plasma membrane
 - (ii) flagellum
 - (iii) Capsule
 - (iv) pili and fimbriae
 - (v) mesosomes
4. Why do we call cell membrane to be dynamic, fluid and semi permeable?
5. "Fluid-mosaic model of cell membrane" was given by Singer-Nicolson. Explain the structure with help of labelled diagram.
6. Why does golgi apparatus remain in close association with E.R.?
7. Name the various types of vacuoles found in cells. Also mention the function of each.
8. With the help of diagram, explain the structure of Mitochondria.
9. Classify the types of Plastids found in plant cell. Name the pigments present in chloroplasts.
10. What do you understand by 'Cartwheel' like structure? Draw a well labelled diagram also.
11. Give a brief account of nucleosome and nucleopore.
12. Why does the nucleus have an envelope around it? What are the principal roles of nucleus?
13. Name the primary constriction present in every chromosome.
14. Identify various types of chromosomes based on the position of centromere.

Psychology:

Kindly do your holiday assignment on sheets/paper to be put up in a separate file/folder.

1. Ask 10 of your classmates and friends about what they think of psychology. Draw a comparison between their views and the scientific explanation as done in Unit 1.
2. Interview a psychologist from any background; clinical, forensic, educational etc. You may use the platform (LinkedIn as discussed in Career Classes) to connect. Ask them about their typical day/routine, strengths and challenges they face. You are free to add questions of your choice to interview the concerned person.
3. Since you will be spending most of the time at home, observe your family members, siblings etc in your home (about the observation method). Note down their facial expressions, gestures etc).
4. Kindly complete the following **worksheet**
<https://learning.hccs.edu/faculty/deborah.ramos/psyc2301-18/introduction-to-psychology-worksheets/chapter-1-worksheets/view>

Reading Material

1. www.psychologytoday.com/us/articles/2010908/10-myths-about-the-mind
2. Interested to pursue a career in psychology. Find out how you can help people in the time to come - Online.maryville.edu/blog/future-psychology

Fine Arts:

Holiday Homework Painting



Details of Homework

*Students have to make **EIGHT** to **TEN** art works for their Practical.*

Size:- A3 will be better, A4 will be the second choice

Work Description



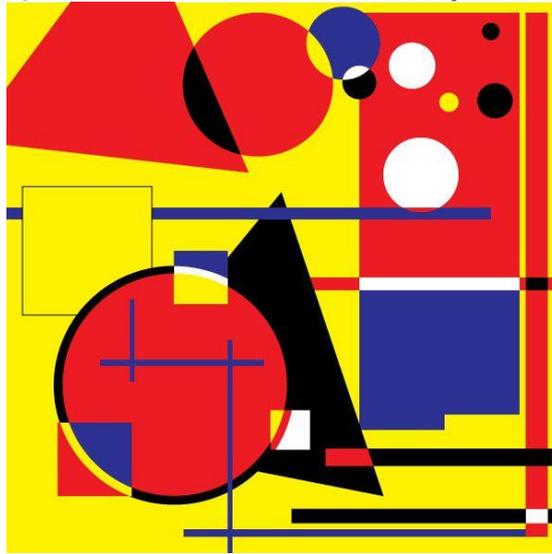
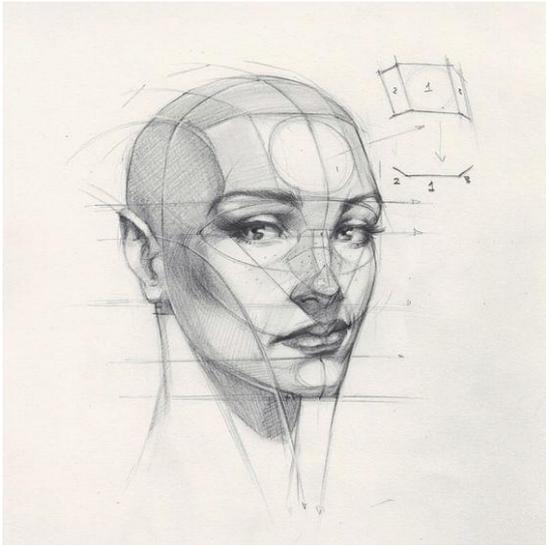
Still Life

Students have to make 03 still life Painting or pencil shading on A3 size paper with the using of three objects.



Landscape or Nature Study

Students have to make 03 Landscape Painting or pencil shading on A3 size paper.



Portrait Or Creative Composition

Students have to make minimum 02 portrait Painting on A3 size paper.

Students also can make minimum 02 creative Painting composition on A3 size paper.

Computer Science:

Independent Study –

Assignment 1

- Q 1 What is volatile memory?
- Q 2 Define each of the following:
 - a. byte (b) kilobyte (c) megabyte (d) gigabyte (e) terabyte:
- Q 3 State the basic units of computer. Name the subunits that make up the CPU, and give the function of each of the unit.
- Q 4 What is the function of memory? What are its measuring units?
- Q 5 Why is primary memory termed as “destructive write” memory but “non-destructive read” memory?
- Q 6 What is the role of CPU of a mobile system?
- Q 7 What are various categories of software?
- Q 8 What is the difference between an interpreter and a compiler?
- Q 9 What is application software? Why it is required?
- Q 10 Briefly explain the basic architecture of a computer.
- Q 11 Would you understand by device drivers ?
- Q 12 Differentiate between General purpose software and customized software
- Q 13 Categorise the following into customize software and general software

Ms paint

Word processor

Spreadsheet

Presentation software

Banking software

Railways reservation

Hotel management

School ERP system

- Q 14 Explain any 5 functions of operating system
- Q 15 What do you understand why spooling and buffering
- Q 16 What do you understand by CPU scheduling name any tools feasible scheduling used in computers

Assignment 2

1. Name the software required to make a computer functional. Write down its two primary services.
2. How does the computer understand a program written in high level language?
3. Why is the execution time of the machine code less than that of source code?
4. What is the need of RAM? How does it differ from ROM?
 1. What is the need for secondary memory?
5. How do different components of the computer communicate with each other?
6. Draw the block diagram of a computer system. Briefly write about the functionality of each component.

7. What is the primary role of system bus? Why is data bus is bidirectional while address bus is unidirectional?
8. Write equivalent memory units of the following:
 - a. 596 MB = _____ KB
 - b. 14 PB = _____ GB
 - c. 135 YB = _____ PB
 - d. 10000 MB = _____ PB
 - e. 1000000 KB = _____ GB

MCQ

- Q 1 The smallest unit in a digit system is
- (A) Byte
 - (B) Kilobyte
 - (C) Bit
 - (D) Character
- Q 2 A temporary storage area, attached to the CPU, for I/O operations is a
- (A) Core
 - (B) Register
 - (C) Buffer
 - (D) Chip
- Q 3 Real time computing is possible because of the following characteristic of computer
- (A) Accuracy
 - (B) Storage capability
 - (C) Versatility
 - (E) High speed
- Q 4 A permanent memory is called
- (A) ALU
 - (B) CPU
 - (C) ROM
 - (D) RAM
- Ans: C
ROM
- Q 5 Which of the following computer language is used for artificial intelligence?
- (A) C
 - (B) COBOL
 - (C) PROLOG
 - (D) FORTRAN
- Q 6 Which of the following does not store data permanently?
- (A) Hard Disk
 - (B) Floppy disk
 - (C) RAM
 - (D) ROM
- Q 7 What do you call a computer on a network that requests files from another computer?
- (A) A web server
 - (B) A router
 - (C) A host
 - (D) A client

Q 8 Storage device found inside the computer

- (A) CD-ROM
- (B) Hard Disk
- (C) Super Disk
- (D) Zip Disk

Q 9 Which of the following is a secondary storage device?

- (A) Microprocessor
- (B) RAM
- (C) Optical disks
- (D) All of these

Assignment– 3: DATA REPRESENTATION

Very Short answer Type Questions

Q.1 Add the binary numbers

(a) 110101 and 101111 (b) 10110 and 1101 Ans: (a) 1100100 (b) 100011

Q.2 Convert 111110111101012 to octal

Q.3 Convert the following binary numbers to decimal -

(a)1010 (b) 111000 (c) 10101111 (d) 10110

Q.4 Convert the following Decimal numbers to binary -

(a) 23 (b) 100(c) 161 (d) 145

Q.5 Convert the following Hexadecimal numbers to Binary -

(a) BE (b) BC9 (c) A07 (d) 7AB4

Q.6 Convert the following binary numbers to Hexadecimal -

(a)101000001 (b) 11100011 (c) 10101111 (d) 101101111

Q.7 Convert the following Octal numbers to Binary -

(a) 456 (b) 26

Convert the following:

(a) 4468 to ()16 (b) 47.58 to ()10 (c) 45.910 to ()2

Short Answer Type Questions

Q.1 What is the use of encoding schemes?

Q.2 Discuss UTF-8 encoding Scheme.

Q.3 How UTF-8 encoding scheme different from UTF-32 encoding scheme?

Q.4 What are ASCII and extended ASCII schemes?

Q.5 What is the utility of ISCII encoding schemes?

Q.6 What is Unicode? What is its significance?

Q.7 What are ASCII and ISCII? Why are these used?

Q.8 Compare UTF-8 and UTF-32 encoding schemes. Which one is most popular scheme?

Q.9 What do you understand by code point and code unit?

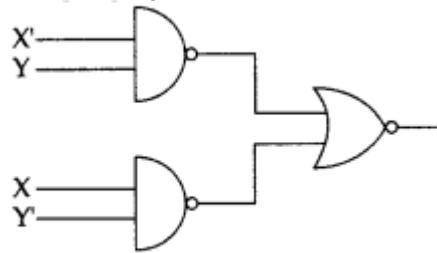
Q.10 What is code space? How is it related to code point?

Assignment 4: Boolean Logic

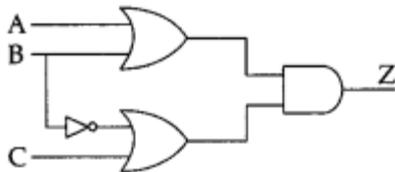
Very Short answer Type Questions

- Q.1 Prove $X + (X \cdot Y) = X$ using truth table. Ans:
 Q.3 What is tautology?
 Q.4 What is Fallacy?
 Q.5 What is a truth table? What is its significance?
 Q.2 Draw logic circuit diagram for the following expression –
 (a) $Y = AB + B \cdot C + C \cdot A$ (b) $R = XYZ + Y \cdot (X + Z)$
 Q.7 State and verify Absorption law in Boolean Algebra.
 Q.8 State DeMorgan's law of Boolean Algebra and verify them using truth table.
 Q.13 Why are NAND and NOR Gates more popular?

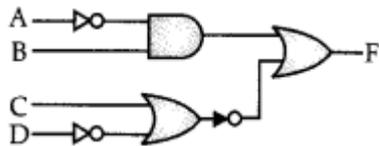
Write the equivalent boolean expression for the following logic circuit.



Q.14 Write the equivalent Boolean expression for the following logic circuit.



Q.15 Obtain the Boolean Expression for the logic circuit shown below.



Q.16 Draw a logic circuit for the Boolean expression

$$A \cdot \bar{B} + (C + \bar{B}) \cdot \bar{A}$$



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