South Point High School

Holiday Homework

Class XI

Science 2019

ENGLISH

1. Holiday Reading: Pygmalion by George Bernard Shaw (Project to be done immediately after the summer vacation)
2. You have seen an advertisement placed by Indira Gandhi Institute of Physical Education and Sports Sciences, Block B, Vikaspuri, New Delhi 110018 for B.P.Ed. and M.P.Ed. courses, in a daily. You wish to join the B.P.Ed. course after your board examinations. Write a letter to the Principal enquiring about the details of the course. Mention why you are interested to join. You are Vineet/ Vidya.

PHYSICS

1. A calorie is a unit of heat or energy and it equals 4.2 J where $1J = 1$ kg m^2/s^2. Suppose we employ a system of units in which the unit of mass is α kg, unit of length is β m, the unit of time is Υ s. Show that a calorie has a magnitude $4.2\alpha^{-1}\beta^{-2}\Upsilon^{2}$ in terms of the new unit.
2. A new unit of length is chosen such that the speed of light in vacuum is unity. What is the distance between Sun and Earth in terms of the new unit if light takes 8 min 20 se to cover the distance?
3. State the number of significant figures in the following:
   (a) 0.007 m^2 (b) 2.64 x 10^{24} kg (c) 0.2370 g/cc
4. It is claimed that two caesium clocks, if allowed to run for 100 years, free from any disturbance, may differ by only about 0.02 s. What does this imply for the accuracy of the standard caesium clock in measuring a time interval of 1 s?
5. Which of the following is more precise device for measuring length:
   (a) A vernier callipers with 20 divisions on its sliding scale
   (b) A screw gauge of pitch 1mm and 100 divisions on the circular scale.
   (c) An optical instrument that can measure length to within a wavelength of light?
6. A physical quantity P is related to four observables a, b, c, d as follows:
$$P = a^3b^2/\sqrt{c}d$$
   The percentage errors of measurement in a, b, c and d are 1%, 3%, 4% and 2% respectively. What is the percentage error in the quantity P? If the value of P calculated using the above relation turns out to be 3.763, to what value should you round off the result?

CHEMISTRY

1. How many significant figures should be present in the answer of the following?

   $$\frac{2.5 \times 1.25 \times 3.5}{2.01}$$

2. A sample of drinking water was found to be severely contaminated with chloroform. The level of contamination was 15 ppm (by mass)

   i) Express this in percent by mass.

   ii) Determine the molality of chloroform in this water sample.

3. Calcium carbonate reacts with aqueous HCl to give $CaCl_2$ and CO_2 according to the reaction given below:

   $CaCO_3(s) + 2HCl(aq) \rightarrow CaCl_2(aq) + CO_2(g) + H_2O(l)$

   What mass of $CaCl_2$ will be formed when 250 mL of 0.76M HCl reacts with 1000 g of $CaCO_3$? Name the limiting reagent. Calculate the number of moles of $CaCl_2$ formed in the reaction.

4. Table tennis ball has a mass 10 g and a speed of 90m/s If speed can be measured within an accuracy of 4% what will be the uncertainty in speed and position?

5. Arrange the following in increasing order of their energy.

   i)   4d, 4f, 5s, 5p   ii)   5p, 5d, 5f, 6s, 6p

6. Calculate the energy and frequency of the radiation emitted when an electron jumps from n=3 to n=2 in a hydrogen atom.

MATHEMATICS

ACTIVITY – 3 :(with some application)

   Showing $A \cup B, A \cup B, A - B, B - A, A\Delta B$ using Venn diagram (as directed by your subject teacher)

ACTIVITY – 8 : (with some application)

   To represent the sine and cosines of the angles in different quadrants (you may take the angles of your choice)

Submit the above two activities in a LAB NOTE BOOK (well designed , well maintained) immediately after summer vacation and get it signed by your respective subject teacher .

You should remember that the above task is mandatory and you must do it as a part of internal assessment carrying significant marks .

For your further clarification and guidelines you may follow the CBSE site(curriculum) where you get also the link for NCERT LAB MANUALS

BIOLOGY

Investigatory projects :

Topics:

I. Poisonous snakes: Human friend or foe.

II. Taxonomical Aids: Herbarium, Museum and Monograph

III. Mitochondrion : Biocellular Battery

Instructions have been given in class.

COMPUTER SCIENCE

Draw flowchart for the following:

1. Input the total purchase amount, calculate the discount and print the final payable amount. Print also the name of gift item eligible for, depending on the following:

Purchase Amount	Discount%
<2,000	Nil
$\geq 2,000$ and < 5,000	4%
$\geq 5,000$ and <10,000	8%
$\geq 10,000$	10%

    List of Gift Items (in addition to discount, if any):
    - For purchase amount $\geq 40,000$/-, Large Suitcase
    - For purchase amount $\geq 20,000$/- and <40,000/-, Strolly Bag
    - For purchase amount $\geq 10,000$/- and <20,000/-, Duffel Bag
    - For purchase amount $\geq 5,000$/- and <10,000/-, Pouch Bag

2. Input the value of the number of lines N (1 to 9) and print the following pattern (the pattern for N=4is given below):

    ```
    +  +  +  1  +  +  +
    +  +  2  2  2  +  +
    +  3  3  3  3  3  +
    4  4  4  4  4  4  4
    ```

NOTE: Submit the flow charts <u>HAND-DRAWN</u> in required number of A4 size paper, with a cover indicating your ID, Name, Class, Section and Roll. The flow charts should be CLEARLY and NEATLY drawn. Staple the pages properly like a book. DO NOT SUBMIT IN A CHANNEL FILE.

ECONOMICS

Economics Project Topics were announced and explained-

For Odd Roll Numbers: "Effect on PPC due to various government policies"

The outline of the Project has been explained and <u>five</u> suggestive policies are given namely-

a. MGNREGA

b. Skill India

c. Digital India

d. Swachh Bharat Mission

e. Sarva Shiksha Abhiyan

For H.H.W. students will collect information in the form of Newspaper reports, reports from journals, magazines, internet, collect pictures related to them and submit a brief report in a lace file after the vacation.

For Even Roll Numbers: "Opportunity cost as an Economic Tool" (Taking real life situations)

For H.H.W, the students will study the concept of opportunity cost in detail. They will then consider <u>five</u> real life situations, both at the Micro and Macro levels and explain the opportunity cost involved in these situations; with an insight into the ideas of scarcity and choice. They will submit their study, along with relevant pictures, in a lace file. This will be the research work as a part of their project.

PSYCHOLOGY

1. Project work- On "How to do a case study".(with a sample case study on any subject-individual)
2. Note on -New researches on memory(eye witness testimony, etc)
3. Watch any two or more movies or read books (related to psychological issues)
   - Like-driving miss daisy (1989-ageing)
   - 28 days(2000-substance abuse/counseling)
   - The blind side(2009-social psychology)
   - Memento, 50 first dates (short term memory loss)
   - Regarding Henry'- (retrograde amnesia)
   - Up (life span), inside out (2015-Emotions)
   - Lucy , limitless, inception(brain functioning), Etc