KĀSIGA SCHOOL

DEHRADUN

Holiday Homework Summer Break 2021

HOLIDAY HOMEWORK GRADE 12 (SCIENCE)

ENGLISH

Time away from the classroom is often the greatest gift for project planning.

Holiday Homework Class12

1. **Complete all the assignments for the topics covered so far in the notebook.**
2. **Critique one of the following movies in about 200-250 words. Prepare to deliver the same as an integral part of your Speaking Assessment that carries 10marks.**
   The Sound of Music, Inception, Gravity, Interstellar, Life of Pi, The Mysterious Island, Hugo, Hook.

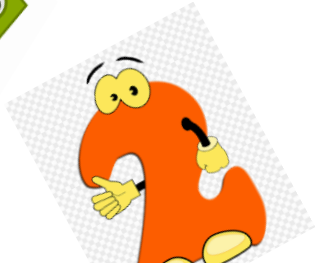
General guidelines on how to critique a movie:

- Choose a movie.
- Specify the issues you are going to discuss and analyze in your paper.
- Watch the movie two-three times: first–to get a general idea of the film; second time–to pay attention to the points that come into your sphere of interest and/or to note the details you weren't able to notice the first time.

- Concentrate on specific movie characters.
- See if the way the characters dress, talk, act, or look corresponds with the image they should be projecting towards the viewer.
- Remember that the better the characters are developed, the more character-driven the story is.
- Consider that the right motivation of the characters makes the audience believe the story and its development; moreover, it helps to understand the real motives, which should be understandable to the viewers.

- Decide whether the plot is predictable.
- Define whether some actions were unpredictable; if they were, then they provided you with some food for thought to make assumptions and express your views considering an unexpected turn of events or simply shocked you.
- Remember that the structure encompasses 3 acts: introducing the main characters, mounting tension through the story (lead up to the climax of the story), and bringing the movie to an end.
- See if the plot corresponds to characters' motivations.
- Mind that before the ending there should be a culmination of the story when the tension reaches the highest point.

- Remember that good dialogues should not be protracted as they are to sound natural.
- See if there is a logical development of the conversation.

Holiday Homework

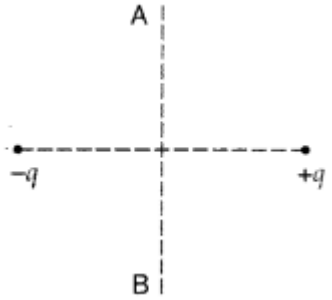

Subject : Mathematics

PHYSICS

Question 1.
A 500 μC charge is at the centre of a square of side 10 cm. Find the work done in moving a charge of 10 μC between two diagonally opposite points on the square.

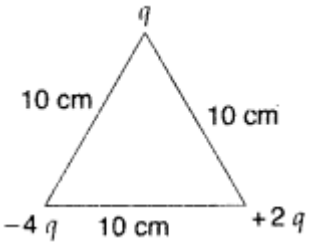
Question 2.
A point charge Q is placed at point O as shown in the figure. Is the potential difference $V_A - V_B$ positive, negative or zero, if Q is
(i) positive
(ii) negative?

Question 3
A charge 'q' is moved from a point A above a dipole of dipole movement 'p' to a point B below the dipole in equatorial plane without acceleration. Find the work done in the process.



Question 4

Calculate the work done to dissociate the system of three charges placed on the vertices of a triangle as shown.



Question 5.
(i) Can two equipotential surfaces intersect each other? Give reasons.
(ii) Two charges -q and + q are located at points A (0, 0, – a) and B (0, 0, +a) respectively. How much work is done in moving a test charge from point P (7, 0, 0) to Q (-3,0,0)?

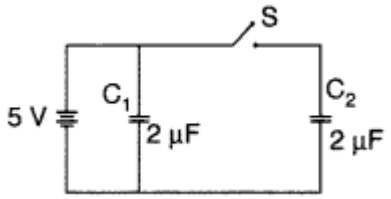
Question 6

Draw 3 equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along Z-direction. How are these surfaces different from that of a constant electric field along Z-direction?

Question 7
Two small identical electrical dipoles AB and CD, each of dipole moment 'p' are kept at an angle of 120° as shown in the figure. What X' is the resultant dipole moment of this combination? If this system is subjected

to electric field ($\vec{E}$) directed along + X direction, what will be the magnitude and direction of the torque acting on this?

Question 8
Figure shows two identical capacitors C_1 and C_2, each of 2 μF capacitance, connected to a battery of 5 V. Initially switch 'S' is left open and dielectric slabs of dielectric constant K = 5 are inserted to fill completely the space between the plates of the two capacitors. How will the charge and

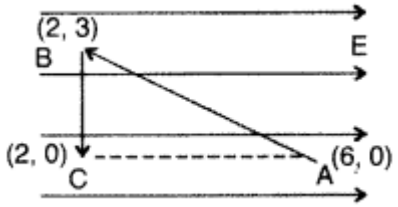


Question 9.
Net capacitance of three identical capacitors in series is 1 pF. What will be their net capacitance if connected in parallel?
Find the ratio of energy stored in the two configurations if they are both connected to the same source.

Question 10.
Net capacitance of three identical capacitors in series is 3 pF. What will be their net capacitance if connected in parallel?
Find the ratio of energy stored in the two configurations if they are both connected to the same source.

Question 11.
Draw a plot showing the variation of
(i) electric field (E) and
(ii) electric potential
(iii) with distance r due to a point charge Q.

Question 12.
A test charge 'q' is moved without acceleration from A to C along the path from A to B and then from B to C in electric field E as shown in the figure.

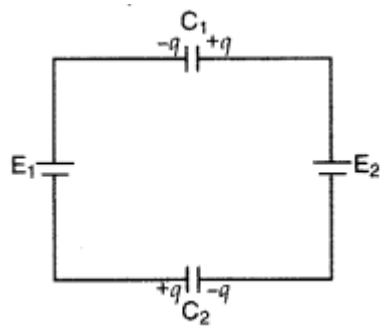


(i) Calculate the potential difference between A and C.
(ii) At which point (of the two) is the electric potential more and why?

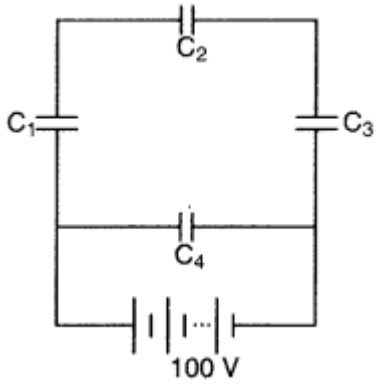
Question 13.
An electric dipole is held in a uniform electric field.
(i) Show that the net force acting on it is zero.
(ii) The dipole is alligned parallel to the field.
Find the work done in rotating it through the angle of 180°

Question 14.
Determine the potential difference across the plates of the capacitor 'C_1' of the network shown in the figure.

[Assume $E_2 > E_1$



Question 15.
A network of four capacitors, each of capacitance 15 μF, is connected across a battery of 100 V, as shown in the figure. Find the net capacitance and the charge on the capacitor C_4.



Question 16.
An electric dipole of length 4 cm, when placed with its axis making an angle of 60° with a uniform electric field, experiences a torque of 4√3 Nm. Calculate the potential energy of the dipole, if it has charge ± 8 nC.

Question 17.

An electric dipole of length 2 cm, when placed with its axis making an angle of 60° with a uniform electric field, experiences a torque of
8 √3 Nm. Calculate the potential energy of the dipole, if it has a charge of ± 4 nC

Question 18.
An electric dipole of length 1 cm, which placed with its axis making an angle of 60° with uniform electric field, experiences a torque of
6√3 Nm. Calculate the potential energy of the dipole, if it has a charge of ± 2 nC

Question 19

Two point charges q and -2q are kept ‘d’ distance apart. Find the location of the point relative to charge ‘q’ at which potential due to this system of charges is zero.

Question 20.

A parallel plate capacitor is charged by a battery. After some time the battery is disconnected and a dielectric slab of dielectric constant K is inserted between the plates. How would
(i) the capacitance,
(ii) the electric field between the plates and
(iii) the energy stored in the capacitor, be affected? Justify your answer.

COMPLETE NCERT QUESTIONS OF CHAPTER 2.

CHEMISTRY

1. Do the NCERT exercise questions in your assignment notebook for Chapter 1 and 2.

2. The project report to be prepared is given as follows-

S.No.	Name of student	Project title
1.	Neerag Basnet	Determination of contents of cold drinks.
2.	Satvik Chahal	Project on measuring the amount of acetic acid in vinegar.
3.	Shriyam Tiwari	To determine caffeine in tea samples.
4.	Ridhi Dewan	To study the effect of metal coupling on rate of corrosion.
5.	Arya Kesari	Project to check the ions present in toothpaste.

NOTE- Do not change the project title on your own, if you want to change the topic you need to inform me. Also no two students can have the same topic as per CBSE.

Instructions for the Project-

1. The project report should be of minimum 10 pages, it has to be printed, colored and attractive with pictures of relevant themes related to your topic.

2. The following sequence has to be followed while making the project and each heading should be done on separate sheet-

i. Cover page
ii. Certificate
iii. Acknowledgment
iv. Index/Contents
v. Introduction
vi. Theory
vii. Objective of the project
viii. Experiment
ix. Observation Table
x. Result
xi. Bibliography

Sites to refer-

projects.icbse.com/subject/chemistry

www.seminarsonly.com/...Projects/Chemistry/Chemistry-Investigatory-Projects-Experi...

https://www.scribd.com/doc/31194873/Investigatory-Project-Chemistry-Class-XII

MATHEMATICS

"Holiday home work will be uploaded in teams under assignments, kindly check there for the same."

BIOLOGY

INSTRUCTIONS-

- **Write all the answers in a separate project file.**
- **Marks of this will be added in the Half yearly practical examinations.**

I ANSWER THE FOLLOWING-

1. Banana is a true fruit and also a parthenocarpic fruit. Justify.
2. The flower of brinjal is referred to as chasmogamous, while that of beans is cleistogamous. How are they different from each other?
3. Draw a labeled diagram of the sectional view of mature pollen grain of angiosperm. Explain the function of any two of its parts.
4. How does floral pattern of Mediterranean orchid Ophrys guarantee cross pollination?
5. Arrange the following words in correct evolutionary sequence:
Pollen grain, sporogenous tissue, microspore tetrad, microspore mother cell.
6. What is triple fusion? Where and how does it take place? Name the nuclei involved in tripe fusion.

LONG ANSWER QUESTIONS

1. Write an essay on the development of female gametophyte. Illustrate the answer with suitable diagrams.
2. Draw a labeled diagram of a mature ovule, showing its internal structure.
3. Describe the structure of a typical monosporic embryo sac found in flowering plants.
4. 'Incompatibility is a natural barrier in the fusion of gametes.' Justify the statement.
5. A) Draw a longitudinal section view of a typical anatropous ovule to show the site where double fertilization takes place. Label any four major parts of ovule.

B) How do male gametes that are present in the pollen grains reach the site mentioned you in part (A) to cause double fertilization.
6. A) Draw the embryo sac of a flowering plant and label central cell, chalazal end of the embryo sac and synergids.
B) Name the cell that develops into an embryo sac and explain how this cell leads to the formation of embryo sac. Also mention the roles played by te various cells of embryo sac.
7. A) Draw a labeled diagram of the internal structure of a mature embryo sac of an angiosperm.
B) That the events that occur in a functional megaspore leading to the development of a matured embryo sac in an angiosperm.
8. Draw a neat and well labeled diagram of pollen sac.

II **To prepare a project on any of the following topics-**

1. **Human health and diseases**
2. **Biotechnology**
3. **Human reproduction**
4. **DNA replication, Translation and Transcription**
5. **Polymerase chain reaction**

Rubrics for the same are as follows-

- **Project should be hand written. Printouts are not allowed.**
- **Pictures, copies of reports, diagrams can be pasted/drawn wherever needed.**
- **It should have ample of work not less than 15 pages.**
- **The project should have following pages**
  - **a cover page**
  - **content/index**
  - **certificate**
  - **acknowledgement**
  - **project work**
  - **bibiliography**

THE MORE THAT YOU READ

THE MORE THINGS YOU WILL KNOW.

THE MORE THAT YOU LEARN.

THE MORE PLACES YOU'LL GO.

HAVE A HAPPY SUMMER VACATIONS

COMPUTER SCIENCE

Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- At least 30 solutions of simple problems and 2 IT applications using Python.
- At least 30 SQL queries based on one and/or two tables
- Solution of at least 2 simple problems incorporating Python Application & Database Connectivity

PHYSICAL EDUCATION

1.Complete your Record File.

**Record File shall include:

I. Procedure for Asanas, Benefits & Contraindication for any two Asanas for Obesity, Asthma, Diabetes, Hypertension and Back pain.

II. Any one game of your choice out of Basketbsll, Football, Cricket, Lawn Tennis, Kabbadi, Kho-Kho. Labelled diagram of field & equipment (Rules, Terminologies & Skills).

III. Write down about history and events (Running, Jumping and Throwing) of Track & Field (Athletics)

(Note: Diagram, illustrations are mandatory for all)

2. Read and write notes of first six chapters of revised PE syllabus book.

PAINTING

1. Bengal school of painting.
2. Modern trend of Indian artists.

Practical home works (portfolio assessment)

1. 3 pcs selected painting compositions.

Topic of the compositions are:

1. Nature.
2. Fantasy.
3. Religious, National, Social Events, and celebrations.