HOLIDAYS' HOME WORK

CLASS XII

SUBJECT - ENGLISH

General Instructions:

- English Holidays' Homework is mainly research and project based.
- All the work is to be done on A-4 size designer sheets and to be arranged in a folder which should be superscribed with your name, class and subject.
- Evaluation will be done and the scored marks will be a part of the Internal Assessment of Half Yearly Examination.

1. **Speaking & Listening Skills Enhancement (for ASL) - 5 Marks**
   a) Speak an extempore on the following topics, record your voice and send the recordings as an attachment mentioning your name & class as file name to the email ID - holiday.homework.2022.english@gmail.com.
   The topics are -
   Digital India, Gender Discrimination, Rash Driving, Life in a Big City, Advantages of Vegetarianism, Drug Addiction among Teenagers, Natural Disasters, Education for Girls, Haste Makes Waste and Mobiles : A Boon or A Bane

   b) Practice the listening exercises by playing audios & answering the following questions. (Available on Net)
   c) After the vacation you will be assessed for the same and a 'Listening Skills Test' will be taken and marks will be awarded.

2. **Project Work - 10 Marks**

   Make a project on the poem - 'My Mother at Sixty Six' by Kamla Das.

   Instructions -

   - On the right side mention a stanza of the poem and its interpretation and on the left side paste or draw & colour the picture describing that stanza
   - Write even the theme of the poem.
     (Surf net for ideas.)

3. **Research Work - 5 Marks**

   Research about the renowned Poet - John Keats.

   a) Write a brief description about the poet's life

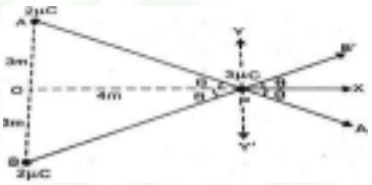
   b) Make a list of the poems written by him.

SUBJECT – PHYSICS

CHAPTER -1: ELECTRIC CHARGES AND FIELDS

1. A free pith-ball A of 8 g carries a positive charge of 5 x 10^{-8}C. What must be the nature and magnitude of charge that should be given to a second pith-ball B fixed at 5 cm below the former ball so that the upper ball is stationery?

2. Two equal positive charges each of 2μC interact with a third positive charge of 3μC situated as shown. Calculate the magnitude and direction of force on the 3μC charge.

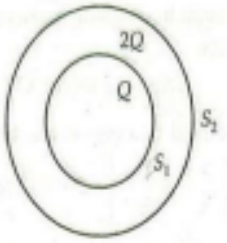


3. Two fixed point charges +4e and +e units are separated by a distance a. where should the third point charge be placed for it to be in equilibrium?

4. S1 and S2 are two hollow concentric spheres enclosing charges Q and 2 Q respectively as shown in fig

(i) What is the ratio of the electric flux through S1 and S2 ?

(ii) How will the electric flux through the sphere S1 change, if a medium of dielectric constant 5 is introduced in the space inside S1in place of air ?



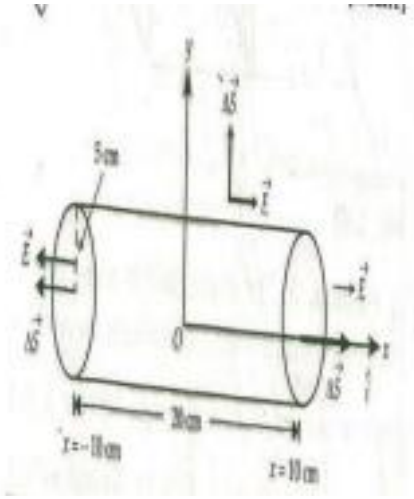
5. An electric field is uniform, and in the positive x direction for positive x and uniform with the same magnitude in the negative x direction for negative x. It is given thatA right circular cylinder of length 20 cm and radius 5 cm has its centre at the origin and its axis along the x-axis so that one face is at x = +10 cm and the other is at x = - 10cm

i) What is the net outward flux through each flat face ?

ii) What is the flux through the side of the cylinder ?

iii) What is the net outward flux through the cylinder ?

iv) What is the net charge inside the cylinder



6. Derive an expression of electric field intensity at a point on equatorial axis of an electric dipole.

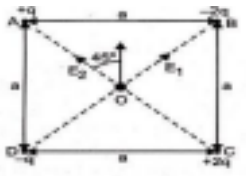
7. Show that the force on each plate of a capacitor has a magnitude equal to QE/2, where Q is the charge on the capacitor and E is the magnitude of the electric field between the plates of the capacitor. Explain the origin of factor ½.

8. Two small identical electrical dipoles AB and CD, each of dipole moment 'p' are kept at an angle of 120^0as shown in Fig What is the resultant dipole moment of this combination? If this system is subjected to electric field (E) directed along +X direction, what will be the magnitude and direction of the torque acting on this.

9. Two small spheres each of mass "m" kg and charge q coulomb are suspended from a point byinsulating threads each of l metre length, but of negligible mass. If Θ is the angle which each string makes with the verticle when equilibrium has been reached, show that $q^2=4mgl^2\sin^2\Theta\tan\Theta\ (4\pi\epsilon\Theta)$

10. Two small charged spheres contain charges +q1 and +q2 respectively. A charge dq is removedfrom sphere containing charge q1 and is transferred to the other. Find the charge on each sphere for maximum electric force between them.

11. Two opposite corners of a square carry Q charge each and the other two opposite corners of the same square carry q charge each. If the resultant force on q is zero, how are Q and q related?



12. Two-point charges +q and -2q are placed at the vertices B and C of an equilateral triangle ABCof side a. obtain the expression for magnitude and direction of resultant electric force at the vertex A due to these two charges.

13. A pendulum bob of mass 80 milligram and carrying a charge of 2×10^{-8}C is at rest in a horizontal uniform electric field of $2\times10^4\ Vm^{-1}$. Find the tension in the thread of the pendulum and the angle it makes with the vertical. What are the magnitude and direction of electric field at centre of the square, if $q=1.0\times10^{-8}$C and a=5cm?

14. What are the magnitude and direction of electric field at centre of the square in fig, if $q=1.0\times10^{-8}$ C and a=5cm

15. Two charges –q are each fixed separated by a distance 2d. A third charge q of mass m placedat the midpoint is displaced slightly by x(x<<d) perpendicular to the line joining the two fixed of time period T= [ ] ◆◆2—8◆◆^{3}◆◆.◆◆◆◆3 1/2

16. State Gauss's Theorem in electrostatics. Using this theorem derive an expression of electric field intensity due to a line charge..

17. (a) Define electric flux .Write its SI units.

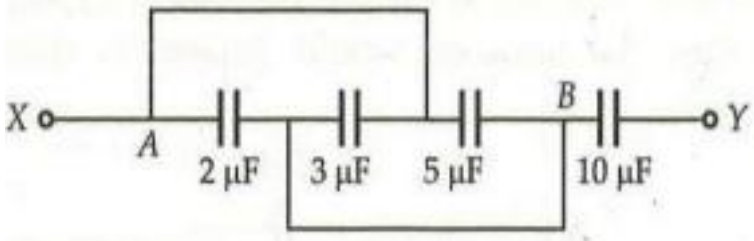
    (b) Using Gauss's law , prove that the electric field at a point due to a uniformly chargesinfinite plane sheet is independent of the distance from it.

    (c) How is the field directed if (i) the sheet is positively charged , (ii) negatively charged ?

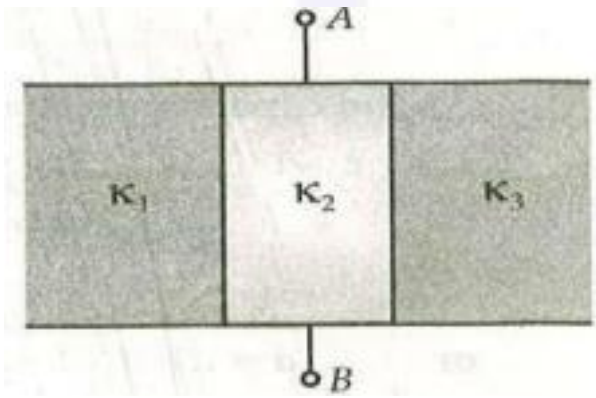
18. Obtain the formula for the electric field due to a long thin wire of uniform linear charge density λ without using Gauss's law. [Hint: use coulombs' law directly and evaluate necessary integral.].

CHAPTER – 2 : ELECTRIC POTENTIAL AND CAPACITANCE

1. Can a metal sphere of radius 1 cm hold a charge of 1 coulomb? Justify your answer?
2. Is the electrostatic potential necessarily zero at a point where the electric field strength is zero? Give an example to illustrate your answer
3. Work done by an electrostatic field is independent of the path followed between two points. Justify
4. Define the term polarisation of a dielectric medium. Write its S.I unit. 5. Four capacitors are connected as shown in the Fig.. Calculate the equivalent capacitance between the points X and Y.



5. The space between the plates of a parallel plate capacitor of capacitance C is filled with three dielectric slabs of equal thickness as shown in Fig. If the dielectric constants of the three slabs are K1 K2, and K3 find the new capacitance.



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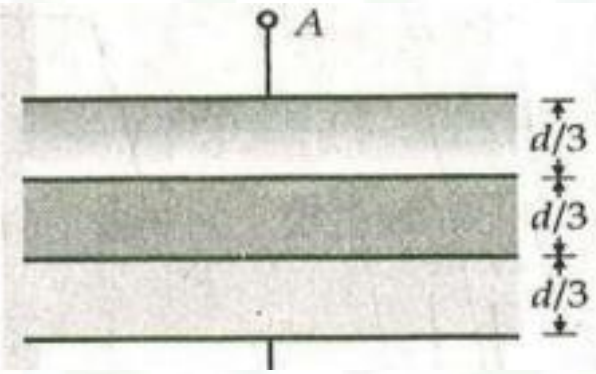


7. Two charges –q and +q are located at point A(0,0,-a) and B(0,0,+a) respectively. Howmuch work is done in moving a test charge from point P(7,0,0) to Q(3,0,0) ?

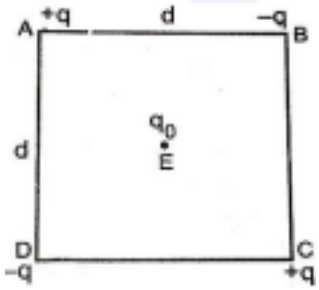
8. A capacitor is charged to potential V1. The power supply is disconnected and the capacitoris connected in parallel to another uncharged capacitor.
   i) Derive the expression for the common potential of the combination of capacitors.
   ii) Show that total energy of the combination is less than the sum of the energy stored in them before they are connected.

9. Deduce the expression for the potential energy of a system of two charges q1 and q2 located r1 and r2 respectively in an external field.

10. A 2μF capacitor with a dielectric slab (K=5) between its plates is charged to 100V and then isolated .
    (i) What will be the p.d if the dielectric is removed?
    (ii) How much work would be done in removing the dielectric?

11. Four point charges +1μC, +1μC, -1μC and -1μC are placed at the corners of A, B, C and D of asquare each of side 0.1m

    (i) Calculate potential at the centre O of the square
    (ii) If E is the middle point of BC, what is the work done in carrying and electron fromO to E?



12. Four charges are arranged at the corners of a square ABCD of side d as shown. Find the work required to put together this arrangement. A charge q0 is brought to the centre E of the square, the four charges being held fixed at the corners. How much extra work is needed to do this?

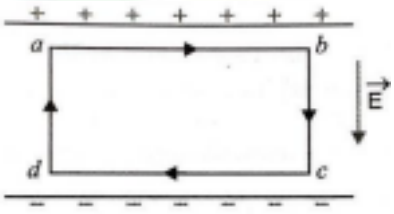
13. Consider a uniform electric field $E=3\times10^{3}$ iNC^{-1}. Calculate the flux of this field through a square surface of area 10 cm square

    (i) When its plane is parallel to Y-Z plane

    (ii) When normal to its plane makes an angle 60˚ with x axis

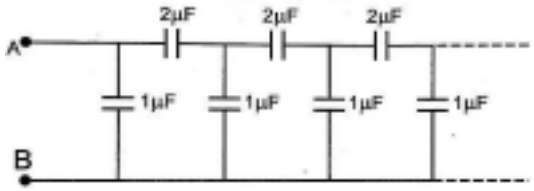
14. An infinitely long positively charged wire has a linear charge density λcm^{-1}. An electron is revolving around the wire as its centre with a constant velocity in the circular plane perpendicular to the wire. Deduce the expression for KE of the electron. Plot a graph of KE as a function of charge density λ.

15. Two capacitors of unknown capacitances C1 and C2 are connected first in series and then in parallel, across a battery of 100V. If the energy stored in the two combinations is 0.045J and 0.25J respectively, determine the values of C1 and C2. Also calculate the charge on each capacitor in parallel combination.

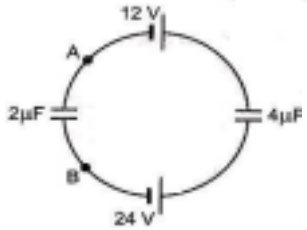


16. The electric field inside a parallel plate capacitor is E. Findt he amount of work done in moving a charge q over a closed rectangular loop abcda.

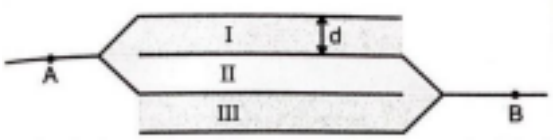
17. Find the equivalent capacitance of the ladder between points A and B.



18. Find the p.d between points A and B of arrangement shown in fig.

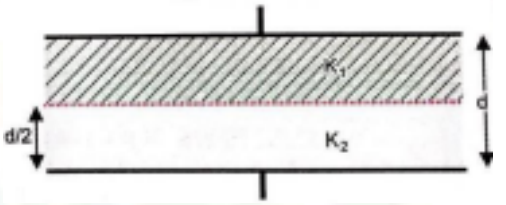


19. What is the capacitance of arrangement of 4 plates each of area A at a distance d in air?

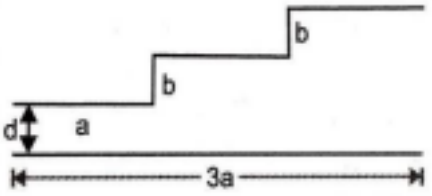


20. .A parallel plate capacitor is filled with dielectrics as shown.

What is its capacitance?



21. A capacitor is made of a flat plate of area A and a second plate having a stair like structure as shown. The width of each stair is a and b. find the capacitance of the assembly?



22. A spherical conducting shell of inner radius r1 and outer radius r2 has a charge Q.

(a) A charge q is placed at the centre of the shell. What is the surface charge density on the inner and outer surfaces of the shell?
(b) Is the electric field intensity a cavity (with no charge) zero, even if the shell is notspherical but has any irregular shape? Explain.

23. Obtain equivalent capacitance of the following network. For a 300V supply, determine the charge and voltage across each capacitor.

24. A spherical capacitor consists of two concentric spherical conductors, held in position by suitable insulating supports. Show that the capacitance of this spherical capacitor is given by $^{C}=$
^{4}□□□□.□□1 □□2 □□$_{1}$⁻□□2
where r1 and r2 are radius of outer and inner spheres respective

25. Three identical capacitor C1, C2 and C3of capacitance 6 F each are connected to a 12 V battery as shown

Find: i) Charge on each capacitor

ii) Equivalent capacitance of the network

iii) Energy stored in the network of capacitor

(b) Derive an expression for the energy stored in a parallel plate capaci

SUBJECT- CHEMISTRY

GENERAL INSTRUCTIONS:-

- Holiday homework will be evaluated properly and it will comprise a fixed share in internal assessment of half yearly examination.
- Assignment and revision work has to be completed in fair chemistry notebook only.
- Holiday homework will be judged on the following parameters:
    a) Level of research
    b) Presentation
    c) Tidiness

INVESTIGATORY PROJECT (FOR CBSE EXAMINATION 2022) (15 MARKS)

Guidelines

- Select any one of the topics from the mentioned list of projects.
- Do internet research and watch you tube videos on relevant topic.
- Prepare PPT on the selected topic.Also you have to prepare a project file.
- First slide has to carry the information like – project name, subject name, session.
- Starting from first slide to concluding slide ,every related information should be presented in order.
- Investigatory project must be supported with relevant pictures of the experiments performed (wherever required)
- Bibliography to be included.

Title of project

a) Soap preparation
b) Lipstick preparation
c) Cream preparation
d) Rate of evaporation of different liquids and different conditions
e) Gas mask making
f) Amount of casein in different milk
g) Conditions for setting of cement
h) Kitchen chemistry with preparation of things-pickles, cake, bread, jam, squash etc
i) Food preservation chemistry-with making of things
j) Food adulteration
k) Rate of fermentation of different flours…. temperature ,humidity conditions
l) Hand Sanitizers ,Soaps –As our life
m) Path lab -some common tests
n) Hand Sanitizers ,Soaps –As our life
o) Colloids ,Aerosols-Chemistry in Daily Life
p) Checking the bacterial contamination in drinking water by testing sulphide ion
q) Study of the methods of purification of water .
r) Study the acidity of different samples of tea leaves.
s) Study the effect of acids and bases on the tensile strength of fibres
t) Preparation of natural indicators

REVISION WORK:- (5 MARKS)

Complete back exercise of ch-2 SOLUTIONS in chemistry notebook along with notes.

SUBJECT- MATHEMATICS

General Instructions:

- Mathematics Holidays' Homework is basically research and Project based.

. Three Chapters are given to revise thoroughly for Viva.

- All the work is to be done on A-4 size sheets and to be arranged in a folder with your name, class and subject.
- Evaluation will be done and marks will be a part of Internal Assessment in Half yearly Examination.

1. **REVISION WORK-5 MARKS**

   Ch-3-Matrices, Ch-4-Determinants & Ch-5- Continuity and Differentiability-

2. **Written work –** Ch-3-Matrices, 4-Determinants& Ch-5- Continuity and differentiation related to given chapters (last 5 years CBSE question paper problems)
3. **WORK-10 MARKS**

   a) Select Topic of your project from the ch-3-Matrices, ch-4- Determinants & Ch-5-Continuity and Differentiability.

   b) Collect the information related to your Topic (text, pictures, tables, Data etc.) and submit in a Folder.

4. **Practical file -5 MARKS**

   Write history of two foreign mathematician as topic given below.

   a) Date of birth
   b) Birth place
   c) Country
   d) About family
   e) About education
   f) Achievement
   g) Famous for
   h) Remarks

SUBJECT- BIOLOGY

General instructions:

- Solve the given questions in your Biology notebooks.
- Prepare a powerpoint presentation and save it in a pendrive.
- Evaluation will be part of your Internal Assessment in Half-Yearly Examination

WRITTEN WORK: 5 MARKS

1. Make notes of unit: Reproduction (chapter 2 ,3,4) in your notebook.
2. Solve the following questions in your notebook.
3. List the three hormones produced in women only during pregnancy .What happens to the level of estrogen and progesteron during pregnancy?
4. .With the help of suitable examples explain how cross breeding is carried out in developing new breeds of animals.
5. Draw a schematic transverse section of mature anther of an angiosperm, label its epidermis, middle layer, tapetum , endothecium, sporogenus tissue and the connective .
6. Differentiate between wind pollinated and insect pollinated flowers.
7. a)) IVF is a very popuar method these days that is helping childless couples to bear a child .describe the different steps that are carried out in this technique.

   b) would you consider Gamete Intra Fallopian transfer (GIFT) as an IVF ?Give reason in support of your answer.

8. a) draw a sectional view of human ovary and label primary follicles , tertiary follicle , grafian follicle and corpus luteum in it.

   b) Name the gonadotrophins and explain their role in oogenesis and the release of ova.

9. You are conducting hybridization on papaya and potato . ehich one ofd them would require the step of emasculstion and why ? however for both you will use the process of bagging . justify.
10. Pollen banks are playing an important role in promoting plant breeding programme all over the world . How are pollens preserved in the pollen banks ? Explain . How are such banks benefiting farmers?Write any two ways .
11. Draw a well labelled diagram to show interrelationship of four accessory ducts in human male reproductive system.
12. Explain any one application of the following :

    a) Amniocentesis b) Lactational amenorrhea c) ZIFT

13. Explainn any two ways by which apomictic seeds can develop.

b) List advantages and disadvantages of a apomictic crop.

c) Why do farmers find production of hybrid seeds costly?

14. Make a poster on topic : Reproductive and child health care programme

15. Medically it is advised to young mothers that breast feeding is the best for their new born babies . Do you agree give reason to support your answer?

16. Differentiate between parthinocarpy and partinogenesis . Give one exampe each.

17. a) Describe any two devices in flowering plants ehich prevent both autogamy and geitonogamy .

b) Explain the events on double fertilization after the pollen tube enters one of the synergids in an ovule of an angiosperm.

PROJECT WORK: 10 MARKS

Q3. Make a power point presentation on any topic of your choice from and prepare a presentation of the same to be presented in class. (minimum slides: 15)

Unit 1: Reproduction

Unit 9: Biotechnology.

SUBJECT- PHYSICAL EDUCATION

General instructions:

1. Physical Education Holiday Homework is basically physically Practice and Project based.

2. All the work is to be done on Physical Education Practical Book with your name, class and Roll No.

3. Evaluation will be done and marks will be a part of Internal Assessment in Half and Final yearly Examination.

1. REVISION WORK - 10 marks.

a) Unit - III: - Yoga as Preventive measures for Lifestyle Diseases.
b) Unit - VI: - Test & Measurement in Sports.

2. PROJECT WORK - 10 marks.

1. PRACTICAL NO. 1

Write Procedure for Asanas, Benefits and contraindication for any two Asanas for each lifestyle disease and Paste Aasans Pictures.

a) Obesity :-Procedure , Benefits & Contraindications for Vajrasana , Hastotansana , Trikonasana , Ardha - Matsyendrasana .
b) Diabetes: - Procedure , Benefits & Contraindications for Bhujangasana , Paschimottanasana , Pavan muktasana . Ardha - Matsyendrasana , Kapalabhati .
c) Asthma :- Procedure , Benefits & Contraindications for Sukhasana , Chakrasana Gomukhasana , Parvatasana , Bhujangasana . Paschimottanasana , Matsyaasana

Anulom – Vilom.

SUBJECT: COMPUTER SCIENCE

General Instructions:

- Computer Science Holidays' Homework is basically practical and Project based.
- All the work is to be done on A-4 size sheets and to be arranged in a folder withyour name, class and subject.
- Evaluation will be done and marks will be a part of Internal Assessment in Half-yearly Examination.

LEARNING OBJECTIVE:

a) To improve retention of the students.
b) To make the continuous and comprehensive learning
c) To prepare the students for VIVA
d) To encourage the students to find the problem, research on it by visiting local market and give the solution by making projects/software.

1. REVISION WORK: 05 MARKS (VIVA)

Chapter: 1 Python Revision Tour (Tokens, Data Types and Loops)

Chapter: 2 Review of Python (List, String and Dictionary)

Chapter: 9 Data Structure (Linear, Stack and Queue)

2. PRACTICAL AND REPORT FILE-10 MARKS

Make 5 Python Program on each topic (from a-d):

a) IF, IF-THEN-ELSE and NESTED IF
b) FOR LOOP
c) WHILE LOOP
d) SORTING with BUBBLE and INSERTION Methods

3. PROJECT AND RESEARCH WORK-10 MARKS

a) Students are to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then you can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. You can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged.

b) You can make a CHATBOT for School reception to give answers of queries. You all are to make a list of questions and relevant answers.

Plagiarism and violations of copyright issues while working on projects are not accepted.