



HOLIDAY HOMEWORK
CLASS XII
ENGLISH

“Practice daily because the quality of your practice determines the caliber of your performance.”

The English holiday homework has been designed keeping in mind the following objectives-

- To improve the writing skills of the students
- To aid in better comprehension of the literary texts
- To develop the reading skills
- To make them practice the time management
- To widen their thought process, imagination and creative thinking

WRITING SECTION-

Do the following questions in your English registers:

1. You are Shagun/ Satvik, the HR Manager of Springdales School, Noida. Draft an advertisement to be published in a local daily specifying your requirements for a librarian, giving all relevant details.
2. Draft a matrimonial advertisement for a well-settled Cardiologist boy, inventing all relevant details in about 50 words. Do not exceed the word limit.
3. You are working for an advertising agency. Draft an attractive display advertisement for the Sony company which is launching its latest model of LED television.
4. You are Shagun/ Saatvik, the Administrative Officer of Greenfields Public School, Delhi. During the summer vacation your school is planning to organize a tour to Goa. Write a letter to the National Travel Agency, Delhi enquiring about the charges, facilities for students and all the other necessary details.
5. Incidents of quacks (untrained Doctors), untrained truck & bus drivers are on the rise, risking the lives of innocent citizens. Write a letter to the editor suggesting ways like deterrent punishments, heavy fines and imprisonment to curb this menace.
6. You are Vaibhav/Veena, staying at 47-B, Pratap Nagar, New Delhi. You have seen an advertisement in ‘The Times of India’ for recruitment of Sales Manager by Flipcart. Apply in response to this advertisement, giving your detailed bio-data. Invent all necessary details.
7. From the time we get up till we go to bed we use gadgets to make our life more comfortable and leisurely. It has been rightly said that the Science has given eyes to the blind, ears to the deaf and limbs to the cripple. You are Sangeeta / Sandeep of Roop Nagar, Delhi : Write an article in (150-200) words- “Life Style Without the Modern gadgets”.
8. Himani/Hemant a student of class XI, Vishal Bharti School, Paschim Vihar, Delhi feels depressed at the pollution caused by vehicular traffic noise, flowing of industrial effluents into Yamuna River, frequent and unending traffic jams, crackers, polythene bags etc. She/he decides to write an article as ‘Pollution Control Drive’.

Make poster on any one topic on A3 sheet:

1. You are an active member of United Nations Volunteers Association [UNVA]. Design an attractive poster asking the educated youth to volunteer to teach the under privileged children for two hours under the project 'Each One, Teach One'.
2. You are the Secretary of the Creative Arts of your school. Your club is organizing a 'On the Spot Painting Competition' at the school campus on the coming Sunday. Prepare a graceful poster for the occasion.
3. Make a poster on 'SAVE THE EARTH' on behalf of the Pollution Board, Rajasthan State.
4. You are the Secretary, Red Cross, New Delhi. Design a suitable poster prompting the citizens to volunteer themselves for 'BLOOD DONATION' at various camps organized by the Red Cross in the city.
5. Design a poster for the 'Anti – tobacco Day' creating awareness among the general masses about the harms of smoking.
6. You are Rajeev Nanda, Secretary Welfare Association, Faridabad. Design a suitable poster highlighting the Importance of Yoga.

Literature Section: to be done in registers-

A. Practice Questions-

1. How can the life of the children of the slums change?
2. Why is the poet against 'total inactivity'?
3. How does M. Hamel pay tribute to the French language?
4. What handicap did William Douglas encounter after his experience in the YMCA pool?
5. Why does M Hamel want the people to safeguard French?
6. Why did the Dewan decide to take the tiger from People's Park to be killed by the Tiger King?
7. How did the instructor help Douglas to get rid of his fear of water?
8. What does the poet mean by saying 'let their tongues run naked into books'?
9. How does the author satirize the upbringing of the crown prince?
10. What is destined cannot be changed? Do you agree or not? Give reasons.
11. Why was the poet sad while going to the airport?
12. Contrast the real world with the world of children sitting in the slum classroom.
13. Describe the changes that came over each time William Douglas went down the YMCA pool?
14. What steps can be taken to curb bullying in schools?
15. According to you, who will be happier in life- Saheb or Mukesh?

B. Write a Book Review of 'The Invisible Man'. Make a file. Include the following details-

- Plot
- Summary
- Important characters
- Your favorite incident
- Climax/ anti-climax
- How do you rate it on a scale of 5 stars?

QUESTIONS FOR NOTE MAKING- in registers-

1. Read the passage and prepare notes, summary, abbreviations and give a title-

Anything printed and bound in book size can be called a book, but the quality or mind distinguishes the value of it. What is a book? This is how Anatole France describes it: "A series of little printed signs-essentially only that. It is for the reader to supply himself the forms and colors and sentiments to which these signs correspond. It will depend on him whether the book be dull or brilliant, hot with passion or cold as ice. Or if you prefer to put it otherwise, each word in a book is a magic finger that sets a fibre of our brain vibrating like a harp string and so evokes a note from the sounding board of our soul. No matter how skilful, how inspired' the artist's hand, the sound it makes depends on the quality of the strings within ourselves."

Until recently books were the preserve of a small section-the urban upper classes. Some, even today, make it a point to call themselves *intellectuals*. It would be a pity if books were meant only for intellectuals and not for housewives, farmers, factory workers, artisans and, so on.

In India there are first-generation learners, whose parents might have been illiterate. This poses special challenges to our authors and to those who are entrusted with the task of disseminating knowledge. We need much more research in the use of language and the development of techniques by which knowledge can be transferred to these people without transmission loss.

Publishers should initiate campaigns to persuade people that a good book makes a beautiful present and that reading a good book can be the most relaxing as well as absorbing of pastimes. We should aim at books of quality no less than at quantitative expansion in production and sale. Unless one is constantly exposed to the best, one cannot develop a taste for the good.

2. Read the passage and prepare notes, summary, abbreviations and give a title-

Swimming pools were once considered a luxury limited only to the rich. Today, thanks to plastics and plenty, they number in the millions. Few, of course are of Olympic size where a swimmer can quickly do his laps and stay in shape. Most are above-ground, round mini-pools, line for a cool-off and a' frolic. But, health experts have come to realize that exercises created specially for such swimming pools can tone the muscles, strengthen the heart and pacify the spirit of people of all ages and conditions. And these exercises aren't restricted to small pools alone. Any type of pool, even a crowded municipal one, will do.

Designer of the principal popular exercises is C. Carson Conrad, executive director of the California Bureau of Health. Physicians approve of Conrad's exercises for three reasons. First, since water pressure, even on an onmoving body, stimulates the heart to pump blood throughout the body, exercise in the water promotes thorough circulation still more effectively. Second, water exercise is rhythmic. And continuous, rhythmic exercises, authorities agree, are one of the best defenses against circulatory ailments which might cause atherosclerosis, often the precursor of coronary attacks and strokes. Third, water exercise can be enjoyed with benefit by both young and old, healthy and infirm, swimmers, and in shallow water, non swimmers.

Dr. Ira H. Wilson and Fred W. Kasch, a physician-and-physiologist team, assert that even persons with paraplegia, rheumatic heart, asthma, emphysema, victims of polio or strokes, or amputation can exercise in water and enjoy weightless movement. Arthritics move easily under water. Some physicians use hydro calisthenics for their cardiac patients.

At the University of Illinois Prof. Richard H. Pohndori studied the effect of water exercise on a "typical" couple. He chose as subjects a man-and-wife team of physicians, 43 and 41 years old respectively, who had been sedentary for years. His program was simple: "Swim from one end of the pool to the other until you can swim 1000 yards a day. Swim every day for ten

weeks." Before they started, the couple took 151 physical tests. At the end of ten weeks, they were tested again: their pulse rate had dropped, their rate of breathing had dropped, their blood pressure had come down to normal, the cholesterol level in their blood had dropped 20 percent. Further, more than half of the broken blood vessels disfiguring the woman's thighs had vanished, her husband had improved in all his physical-fitness tests; he reduced the size of his heart, making it more efficient. Both felt younger and more vigorous.

3. Read the passage and prepare notes, summary, abbreviations and give a title-

What is a classical dance? A dance which is created or choreographed and performed according to the tenets of the *Natya Shastra* is called a classical dance. The two broad aspects of classical dancing are the *tandava* and the *lasya*. Power and force are typical of the *tandava*; grace and delicacy, of the *lasya*. *Tandava* is associated with Shiva, and *lasya* with Parvati. Dance which is pure movement is called *nritta*, and dance which is interpretative in nature is called *nritya*.

The four main schools of classical dancing in India are: *Bharata Natyam*, *Kathakali*, *Manipuri*, *Kathak*. *Bharata Natyam* is the oldest and most popular dance-form of India. Earlier, it was known by various names. Some called it *Bharatam*, some *Natyam* some *Desi Attam* and some *Sadir*. The districts of Tanjore and Kanchipuram of Tamil Nadu were the focal points in the development of *Bharata Natyam*. It was danced as a solo performance by devadasis (temple dancers) on all auspicious occasions. Later, kings and rich people lent their patronage to it and it started shedding its purely sacred character. The dancer is directed by the *natuvanar*, who is a musician and, invariably, a teacher. Another musician plays the cymbals. The music for *Bharata Natyam* is the Carnatic School of music. The mridangam (a drum), played on both sides with the hands, provides the rhythm.

The home of *Kathakali* is Kerala. *Kathakali* literally means 'story-play'. It combines music, dance, poetry, drama and mime. Its present form has evolved out of older forms such as *Ramanattam* and *Krishnanattam*. *Kathakali* dance-dramas last from dusk to dawn. The artistes use elaborate costumes; mask-like make-up and towering head-dresses. The dancers are all males - female roles are usually played by boys. There is no stage - a few mats are spread on the ground for the audience to sit on. The only 'stage-lighting' is a brass lamp fed with coconut oil. Two singers provide the vocal music. The *chenda*, a large drum, which is beaten on one side with two slender curved sticks, is an integral part of the *Kathakali* performance. A metal gong, a pair of cymbals and another drum complete the orchestra. Besides providing the beat, they are also the means by which all the sound-effects are created.

Manipur, in the north-east is the home of *Manipuri*. It has evolved out of the folk dances of the land, which are religious in nature. *Lai Haroba* is the oldest dance-drama of Manipur and is based on folk-lore and mythology. But *Ras Leela* is the most popular one. It tells of the legendary love of Radha and Krishna. In the *Manipuri* style of dancing, the accent is on grace and softness. The women's costumes are extremely picturesque. Besides the singers, the *khol*, the *manjira* and the flute also accompany the dancers.

Kathak has its home in north India. '*Kathak*' means 'story-teller'. In ancient times, the story-teller used gestures and movements while narrating the great epics. In course of time it became an elaborate art, rich in beautiful movements and facial expressions. Later, under the Persian influence, the original dance form underwent many changes, gradually losing its religious and moral character. It became a court dance. Both men and women danced. With the passing of years, the *Kathak* performance was reduced to being an evening's entertainment, and the girls, who danced, were no more than pretty entertainers. *Kathak*, however, was revived under the

patronage of the rulers of Lucknow and Jaipur, and this gave rise to two styles known as the Lucknow *gharana* and the Jaipur *gharana*. *Gharana* means 'house' or 'school'. In *Kathak*, the accent is on footwork. A dancer wears anklets with several rows of bells and skillfully regulates their sound, sometimes sounding just one bell out of the many on his feet. The singer who accompanies the *Kathak* dancer not only sings, but reproduces the drum syllables also. The sarangi, a string instrument, provides the music at a *Kathak* performance.

Swarn Khandpur

4. Read the passage and prepare notes, summary, abbreviations and give a title-

We have entered a new world. The fall of the Berlin wall put an end to the bipolar world and gave birth to hope for freedom and prosperity; there were States that gained their independence. Most adopted the democratic model, which corresponds to our shared political values. Globalization further enhances these changes. It offers extra-ordinary opportunities to individuals who are in a position to seize them; easier access to information, speedier communications and unimpeded travels. But it also develops new forms of vulnerabilities; a financial crisis can run from Thailand to Russia via Latin America. Epidemics spread faster and further, be it mad cow's disease or bird flu.

Therefore, our destiny is no longer shaped within safe frontiers but on an international scale. Given the extent of these changes, we must define our world's new principles of organization. In this endeavor for a new order, India has a major role to play. First because it is an example of dynamism and energy. Your country is one of youth; 33 per cent of the population is under the age of 15. You are aware of the tremendous asset and the immense responsibility that this represents. A young population is a guarantee of imagination, renewal, awakening and hope. But it is also a challenge in terms of education, health and training.

India has been able to make the most of globalization and has gained a pivotal role. It provides the example of an economy which has allied dynamism and equilibrium. The past year offers the two-fold satisfaction of a spectacular 7.5 per cent growth rate and inflation under control. Thanks to the size and dynamism of its domestic market, it can project itself into the future with confidence. India is now the biggest international service provider in information technologies, and this at a time when the Western countries are experiencing a real shortage of manpower in this very field. A scientific power, India, today, is also a key player in space research. Thanks to the excellence of the Indian Space Research Organization, it is the forefront of technologies for launchers and the construction of satellites.

This economic vitality has developed on the basis of a strong concern for social justice. In the face of inequalities that still remain and could be increasing, India has given priority, to poverty reduction, job creation and support of the agricultural sector. Your country has shown that economic growth and concern for the greater good are not incompatible. India, however, does not only offer an economic model. It stands as an example for nations that show due respect for cultural identities. This represents a major challenge as globalization has inherent in it two-fold risk. First of all, there is the risk of domination of certain forms of thinking, of certain ways of life and expression. The diversity of cultures, religions, traditions and memories is an essential component of the richness of our world. If we are not careful, it could die one day. Then there is the risk of confrontation of identities. Lack of respect for what people stand for can nurture claims of nationalists and fundamentalists. The more an identity feels threatened, the more it tends to be inward looking, rejects diversity and finally gives in to confrontation.

With 18 official languages and over 1652 dialects, India is at the forefront of cultural diversity. It is a proof that openness to the outside world and preservation of its own roots can go hand in hand. The movement of exchange between cultures must not lead to silencing the polyphony of voices and views. In the heart of its democracy, India has been able to define an identity respectful of each and everyone's specificity. It is home to one of the largest Muslim communities of the world, with over 120 million believers. The religious patchwork of India offers to each minority, whether it be the two million Christians, the 16 million Sikhs or the Buddhists, Jains and Parsis, the possibility of keeping alive their own religious beliefs in harmony with the India identity. Thanks to you we know that the size of the population, that the force of history and traditions is not an obstacle. India is a proof that the universality of Human Rights is a realistic emotion. It shows us that State secularism can be reconciled with the vigour of identities and beliefs.

Dominique de Villepin

5. Read the passage and prepare notes, summary, abbreviations and give a title-

India has stood for freedom: Even before Independence we viewed our own struggle and difficulties on the larger canvas of global problems. If democracy is basically tolerance for others' opinions, the concept of co-existence is democracy on the international plane, for it embodies tolerance of other nations and systems. Similarly, non-alignment gives depth to our independence and self-reliance for it enables us to retain our freedom of judgment and action on international issues in the light of our national interests. We avoid involvement in the conflicts and disputes of others and this helps to blunt conflict between power blocs. I should like to think that it has also helped world stability.

A country is an extended family. When income and resources are limited, one must budget to ensure that waste is avoided, resources husbanded, priorities established, education and other social needs catered to, special provision made for those who are weaker or smaller. Industry has to be balanced with agriculture; technology with culture; state ventures with private initiative; economic growth with social justice; the large with the small. Every section of society must be stimulated to creative activity.

That is our planning. In no way it is totalitarian or coercive. Industrializing, modernizing and transforming an ancient society of immense size, population and diversity is a daunting venture and inevitably, a gradual one. Otherwise there will be resentment. Transformation should not cause too much dislocation or suffering for the people nor should it jettison the basic spiritual and cultural values of our civilization.

India's planning experience sums up the successes and problems of our democratic development. The magnitude and significance of democracy's operation in India are not well understood, for it is often treated as an *adventitious* or borrowed growth. Why has democracy worked in India? Our national leadership was dedicated to it and we wanted it to work, but, also, because in our society there were elements and traditions which supported the growth of democracy.

In our democratic system, there may be differences in many spheres but we rise above them. To achieve the objective of keeping the country united, we have to transcend political and party-based differences, which create *dissensions*. If we cannot remain united and the country does not remain strong, with whom shall we have differences? Against whom shall we fight? With whom shall we be friends? Brothers and sisters, if the country falls, nobody survives. When we were fighting for the freedom of our country, it did not mean only political freedom. It also meant social justice, equality and economic justice. Only one phase is over and another one is under way. We have to cover a long and difficult path. Whereas the enemies were visible during those days; now they are in disguise. Some of them are openly our enemies, but many become unintentional pawns of others.

MATHS

SECTION – A

1. If $P(A) = 0.4$ and $P(A \cup B) = 0.7$, find $P(B)$ if A and B are independent.
2. If $\vec{a} = \hat{i} + \hat{j} + \hat{k}$; $\vec{b} = 2\hat{i} - \hat{j} + 3\hat{k}$ and $\vec{c} = \hat{i} - 2\hat{j} + \hat{k}$, find a unit vector parallel to the vector $2\vec{a} - \vec{b} + 3\vec{c}$.
3. Find the value of k for which the lines $\frac{x-1}{-3} = \frac{y-2}{2k} = \frac{z-3}{2}$ and $\frac{x-1}{3k} = \frac{y-1}{1} = \frac{6-z}{5}$ are perpendicular.
4. If $|\vec{a}| = 2$; $|\vec{b}| = 7$ and $\vec{a} \times \vec{b} = 3\hat{i} + 2\hat{j} + 6\hat{k}$, find the angle between \vec{a} and \vec{b} .

SECTION – B

5. Let $\vec{a} = 4\hat{i} + 5\hat{j} - \hat{k}$, $\vec{b} = \hat{i} - 4\hat{j} + 5\hat{k}$, $\vec{c} = 3\hat{i} + \hat{j} - \hat{k}$. Find a vector \vec{d} which is perpendicular to both \vec{a} and \vec{b} , and is such that $\vec{d} \cdot \vec{c} = 21$.
6. Two fair coins where the faces are marked 3 and 5 are tossed. Let X be the total value of the numbers. Find probability distribution table, the mean and the variance.
7. Find the shortest distance between the skew lines $\frac{x-8}{3} = \frac{y+9}{-16} = \frac{z-10}{7}$ and $\frac{x-15}{3} = \frac{y-29}{8} = \frac{z-5}{-5}$
8. If with reference to the right handed system of mutually perpendicular unit vectors \hat{i}, \hat{j} and \hat{k} , $\vec{\alpha} = 3\hat{i} - \hat{j}$, $\vec{\beta} = 2\hat{i} + \hat{j} - 3\hat{k}$ then express $\vec{\beta}$ in the form of $\vec{\beta} = \vec{\beta}_1 + \vec{\beta}_2$, where $\vec{\beta}_1$ is parallel to $\vec{\alpha}$ and $\vec{\beta}_2$ is perpendicular to $\vec{\alpha}$.
9. Find the image of the point (1, 2, 3) in the plane $x + 2y + 4z = 38$. Also find the perpendicular distance from point to the plane.
10. Find the distance of the point $(-1, -5, -10)$ from the point of intersection of the lines $\vec{r} = 2\hat{i} - \hat{j} + 2\hat{k} + \lambda(3\hat{i} + 4\hat{j} + 2\hat{k})$ and the plane $\vec{r} \cdot (\hat{i} - \hat{j} + \hat{k}) = 5$.
11. Let X denote the number of hours you study on a Sunday. Also it is known that
$$P(X = x) = \begin{cases} 0.1, & \text{if } x = 0 \\ kx, & \text{if } x = 1 \text{ or } 2 \\ k(5 - x), & \text{if } x = 3 \text{ or } 4 \\ 0, & \text{otherwise} \end{cases}$$
 where k is a constant.
 - (a) Find the value of k.
 - (b) What is the probability that you study at least two hours? Exactly two hours? At most two hours?

SECTION C

- 12.** Show that lines $\frac{x+3}{-3} = \frac{y-1}{1} = \frac{z-5}{5}$ and $\frac{x+1}{-1} = \frac{y-2}{2} = \frac{z-5}{5}$ are coplanar. Find equation of the plane containing them.
- 13.** Find the distance of the point A(-2, 3, -4) from the line $\frac{x+2}{3} = \frac{2y+3}{4} = \frac{3z+4}{5}$ measured parallel to the plane $4x + 12y - 3z + 1 = 0$.
- 14.** Find the distance of the point P ($\mathbf{i+j+k}$) from the plane through the points A($\mathbf{2i+j+k}$), B($\mathbf{i+2j+k}$) and C($\mathbf{i+j+2k}$). Also find the position vector of the foot of the perpendicular from P on this plane.
- 15.** A toy company manufactures two types of dolls, A and B. Market tests and available resources have indicated that the combined production level should not exceed 1200 dolls per week and the demand for dolls of type B is at most half of that for dolls of type A. Further, the production level of dolls of type A can exceed three times the production of dolls of other type by at most 600 units. If the company makes profit of Rs 12 and Rs 16 per doll respectively on dolls A and B, how many of each should be produced weekly in order to maximize the profit?
- 16.** A bag contains 4 balls. Two balls are drawn from the bag and are found to be red. Find the probability that remaining balls are red.

BIOLOGY (044)

1. Complete all the assignments based on unit 1 and 2 (Given to the students) which consists of CBSE archives of last five year questions.
2. Complete your spotting practicals based on plant and animal specimens in your practical file with a neat and well labelled diagram.
3. Complete all your NCERT questions and answers of the chapters completed in the class.
4. Create an investigatory project on any one of the following topics –
 - a) Future aspects in biotechnology
 - b) Drug and alcohol abuse
 - c) Medical ethics
 - d) Health and hygiene Striving against life hazardous diseases (AIDS , cancer)
 - e) Case study on malaria, cancer
 - f) Bioinformatics
 - g) Monoclonal antibodies
 - h) Nanotechnology
 - i) Molecular biology

PHYSICS

INSTRUCTIONS:

1. Attempt all questions in neat and clean handwriting in school note book only.
2. Prepare a project for the board examination-2019 on any relevant topic of your syllabus. You can opt topic from the topics collected during the field trip at National Science Centre.
3. The project should be neat and clean as marks will be awarded for it. The project should have cover page with the informations, acknowledgement, certificate, bibliography page, etc.

Q.1 An isolated conducting sphere is given a +ve charge .Does its mass increase ,decrease or remain same

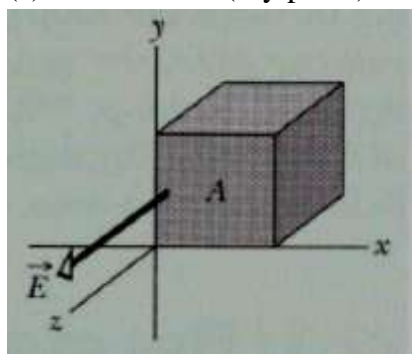
Q.2. Force of attraction between two point charges placed at a distance d is F . What distance apart should they be kept in the same medium so that force between them is $F/3$?

Q.3 Define electric field intensity and give its S.I unit?

Q.4 How much positive and negative charge is there in a cup of water?

Q.5 Figure shows a Gaussian surface of face area A immersed in a uniform electric field that has the positive direction of z axis .in terms of E & A ,what is the flux through

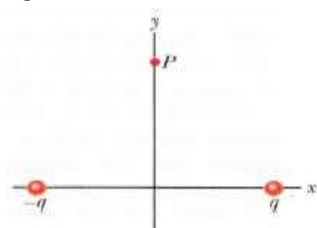
(a)the front face (x - y plane) (b)the rear face (c) the top face (d)the whole face.



Q.6 Two electric field never intersect each other,why? Draw the field lines for two equal and opposite charges.

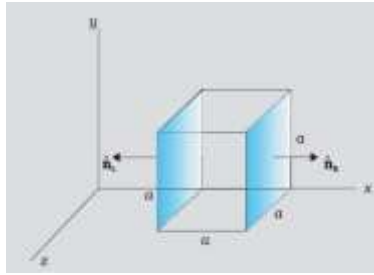
Q.7 A $100\mu\text{c}$ charge is moving from one point to another on same equipotential surface. Find the work done. Draw equipotential surface for a +ve charge

Q.8 Find the electric field at point P.



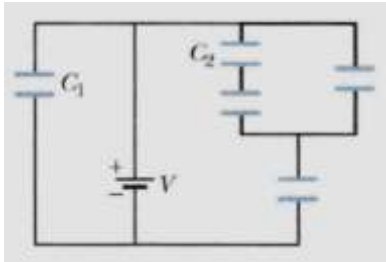
Q.9 Give the statement of gauss theorem ,using this find the electric field due to charged infinite non-conducting sheet having surface charge density σ .

Q.10 The electric field components are $E_x=\alpha x^{1/2}$, $E_y=E_z=0$.In which $\alpha=800\text{N/C m}^{1/2}$.Calculate
(a) the flux through the cube (b)the charge within the cube, $a=0.1\text{m}$

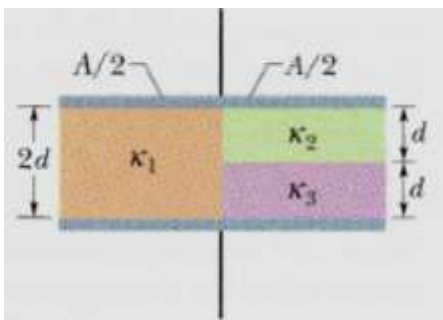
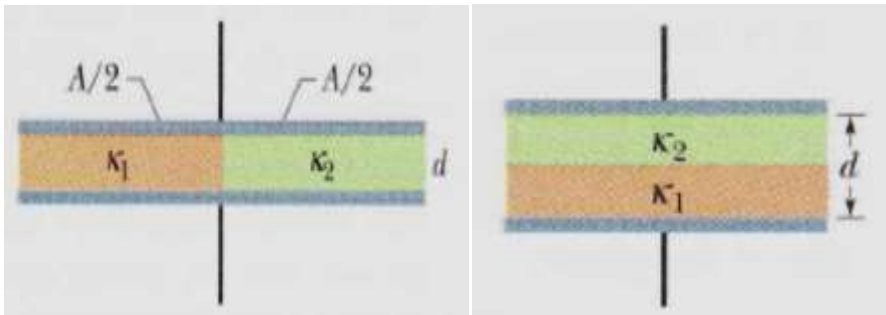


Q.11 Define capacitance and give its S.I. unit .Obtain the expression for capacitance for parallel plate capacitor.

Q.12 Prove that energy stored in a charged capacitor is given by $U=1/2CV^2$. Find total energy stored in given circuit where all capacitors are of $10\mu\text{f}$ and $V=14\text{volt}$.



Q.13 Find net capacitance in all three situation as shown,



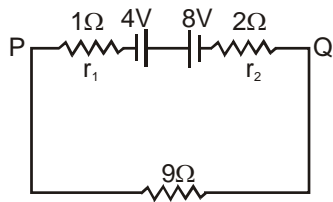
Q.14 Can you interchange the position of the battery in the auxillary circuit and cell whose emf's is to be determined in potentiometer circuit.

Q.15 The length of potentiometer wire is L .A cell of emf E is balanced at length $L/3$ from the positive end of the wire.If the length of wire is increased by $L/2$,at what distance will the same cell be balanced.

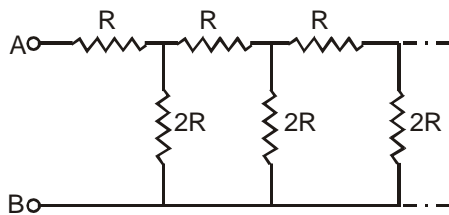
Q.16 Two different wires X and Y of same diameter but different materials are joined in series across a battery. If the number density of electron in X is twice that in Y, find the ratio of drift velocity of electrons in the two wires.

Q.17 Describe the phenomenon of current flow in a conductor and derive the relation between current and drift velocity

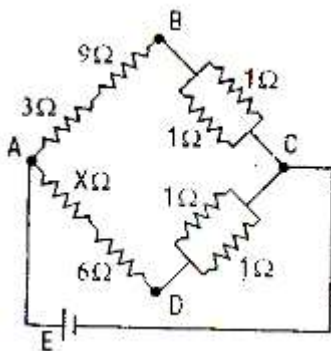
Q.18 Two batteries of e.m.f. 4 V and 8 V with internal resistances 1Ω and 2Ω are connected in a circuit with a resistance of 9Ω as shown in figure. Find the current and potential difference between the points P and Q.



Q.19 An infinite ladder network is arranged with resistances R and $2R$ as shown. Find effective resistance between terminals A and B.



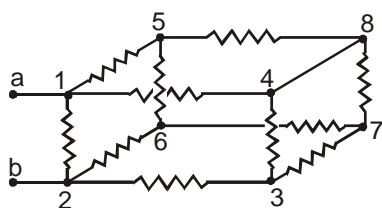
Q.20 For what value of unknown resistance X, the potential difference between B and D will be zero in the arrangement of figure shown.



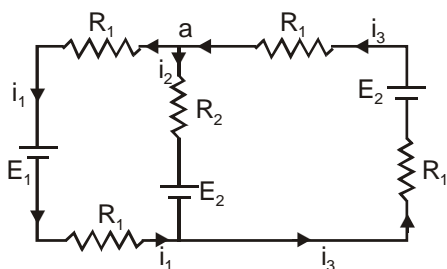
Q.21 Establish the condition for balanced Wheatstone bridge.

Q.22 A standard cell of emf 1.08 V is balanced by the 91 cm of potentiometer wire whose length is 1m, which is supplied by a cell of emf $2V$ through a series resistance of 2Ω . The internal resistance of cell is zero. Find the resistance per unit length of the potentiometer

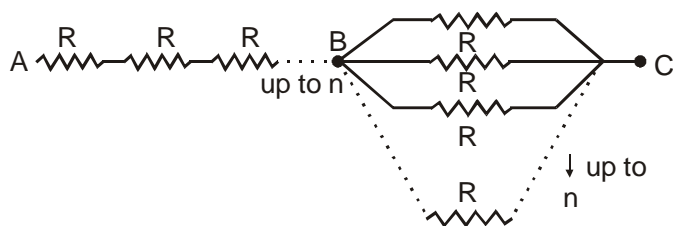
Q.23 Figure shows a cube made of 12 resistances, each of resistance R . Find the equivalent resistance across a cube edge ab .



Q.24 State Kirchhoff's laws of electricity. What is the potential difference between points a and b in the circuit



Q.25 In the following figure the resultant. Resistance between A and C will be –



Chemistry (043)

Q.1 For a chemical reaction activation energy is zero and at 300K rate constant is $5.9 \times 10^{-5} \text{ sec}^{-1}$, what will be the rate constant at 400K?

Q.2 A certain reaction is 50% complete in 20 min at 300K and the same reaction is again 50% complete in 5 min at 350K. Calculate the activation energy if it is a first order reaction.

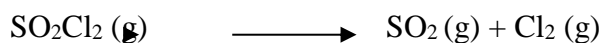
Q.3 The rate of reaction triples when the temperature changes from 20°C to 50°C . Calculate the energy of activation. $[R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}]$

Q.4 The experimental data for the reaction $2A + B_2 \longrightarrow 2AB$, are as follows. Write probable rate expression.

$[A] \text{ mol/L}^{-1}$	$[B] \text{ mol/L}^{-1}$	Initial rate $\text{mol L}^{-1} \text{ sec}^{-1}$
0.5	0.5	1.6×10^{-4}
0.5	1.0	3.2×10^{-4}
1.0	1.0	3.2×10^{-4}

Q.5 The decomposition of phosphine $4\text{PH}_3(\text{g}) \longrightarrow \text{P}_4(\text{g}) + 6\text{H}_2(\text{g})$ has rate law; Rate = $k [\text{PH}_3]$. The rate constant is $6.0 \times 10^{-4} \text{ s}^{-1}$ at 300K and activation energy is $3.05 \times 10^5 \text{ J mol}^{-1}$. Calculate the value of the rate constant at 310K. ($R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$).

Q.6 The following data were obtained during the first order thermal decomposition of SO_2Cl_2 at a constant volume.



Experiment	Time/ s^{-1}	Total pressure/atm
1	0	0.5
2	100	0.6

Calculate the rate of the reaction when total pressure is 0.65 atm.

Q.7 The time required for 10% completion of a first order reaction at 298K is equal to that required for its 25% completion at 308K. If the value of A is $4 \times 10^{10} \text{ s}^{-1}$. Calculate k at 318K and E_a .

Q.8 The rate constant for the first order decomposition of H_2O_2 is given by the following equation:

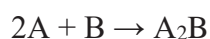
$$\log k = 14.34 - 1.25 \times 10^4 K/T$$

Calculate E_a for this reaction and at what temperature will its half-period be 256 minutes?

Q.9 The decomposition of A into product has value of k as $4.5 \times 10^3 \text{ s}^{-1}$ at 10°C and energy of activation 60 kJ mol^{-1} . At what temperature would k be $1.5 \times 10^4 \text{ s}^{-1}$?

Q. 10 A first order reaction has a rate constant $1.15 \times 10^{-3} \text{ s}^{-1}$. How long will 5 g of this reactant take to reduce to 3 g?

Q.11 For the reaction:



the rate = $k[\text{A}][\text{B}]^2$ with $k = 2.0 \times 10^{-6} \text{ mol}^{-2} \text{ L}^2 \text{ s}^{-1}$. Calculate the initial rate of the reaction when $[\text{A}] = 0.1 \text{ mol L}^{-1}$, $[\text{B}] = 0.2 \text{ mol L}^{-1}$. Calculate the rate of reaction after $[\text{A}]$ is reduced to 0.06 mol L^{-1} .

Q. 12 The decomposition of NH_3 on platinum surface is zero order reaction. What are the rates of production of N_2 and H_2 if $k = 2.5 \times 10^{-4} \text{ mol}^{-1} \text{ L s}^{-1}$?

Q. 13 The rate constant for the decomposition of hydrocarbons is $2.418 \times 10^{-5} \text{ s}^{-1}$ at 546 K. If the energy of activation is 179.9 kJ/mol , what will be the value of pre-exponential factor.

Q. 14 The decomposition of A into product has value of k as $4.5 \times 10^3 \text{ s}^{-1}$ at 10°C and energy of activation 60 kJ mol^{-1} . At what temperature would k be $1.5 \times 10^4 \text{ s}^{-1}$?

Q.15 Why gas masks are used by miners in coal mines while working?

Q.16 Why does sky appear blue to us?

Q.17 What happens when hydrated ferric oxide and arsenious sulphide are mixed in almost equal proportions?

Q.18 What are the physical states of dispersed phase and dispersion medium in the following:

- (i) Milk (ii) smoke (iii) Gel (iv) Butter (v) Clouds

Q.19 Gelatin is generally added to ice-cream. Why?

Q.20 Which of the following is more effective in coagulating positively charged hydrated ferric oxide sol : (i) KCl (ii) CaSO₄ (iii) K₃ [Fe(CN)₆].

Q.21 Define the term peptization and mention its cause.

Q.22 What is an emulsifying agent? What role does it play in forming an emulsion?

Q.23 Account for the following :

- (a) Artificial rain can be caused by spraying common salt on the clouds.
(b) Electrical precipitation of smoke.

Q.24 Write chemical equations for the preparation of sols :

- (a) Gold sol by reduction.
(b) hydrated ferric oxide sol by hydrolysis
(c) Negative colloidal sol

Q.25 What happens:

- (a) By persistent dialysis of a sol.
(b) When river water meets the sea water.
(c) When alum is applied on cuts during bleeding

Q.26 What is the cause of Brownian movement among colloidal particles?

Q.27 How is adsorption of a gas related to its critical temperature?

Q.28 Explain what is observed when:

- (i) an emulsion is subjected to centrifugation
(ii) FeCl₃ is added in the freshly prepared precipitate of Fe(OH)₃

Q.29 Distinguish between multimolecular, macromolecular and associated colloids with the help of one example of each.

(II) Investigatory Project

- ❖ *Student will prepare one investigatory project and submit the project file on 03 July 2017.*

List of projects for class XII

- ❖ Study of the presence of oxalate ions in guava fruit at different stages of ripening.(Roll No. 1,9,17,25,33,41)
❖ Study of quantity of casein present in different samples of milk. (Roll No. 2,10,18,26,34,42)

- ❖ Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc. (Roll No. 3,11,19,27,35,43)
- ❖ Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, Concentration, time, etc.) (Roll No. 4,12,20,28,36,44)
- ❖ Study of digestion of starch by salivary amylase and effect of pH and temperature on it. (Roll No. 5,13,21,29,37,45)
- ❖ Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc. (Roll No. 6,14,22,30,38)
- ❖ Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom). (Roll No. 7,15,23,31,39)
- ❖ Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

FINE ART

Part 1: Natural and object study

(A) Draw and shade **two** object drawing of a group of objects from any drawing book on a drawing paper of half imperial size .Your drawing should be appropriate in realistic manner with proper light, shade and perspective. Natural and geometrical form may be covered in group of objects

Natural-forms-large size foliage and flower, fruits, vegetable, any kitchen object

(B) Draw and colour **one** object drawing of a group and drapery the help of poster colour on a drawing paper of half imperial size.

Part 2: Painting composition

(A) Make **two** compositions with two human figure of the following three subject in any medium (poster or water colour) of your choice on a drawing paper of half imperial size either horizontally or vertically. Your composition should be original and effective. The subject of composition are given below-

1. Outdoor study/indoor study
2. Games and sport activity
3. City escape/village escape

(B) Make **one** landscape or nature scene with the help of poster colour on a drawing paper of half imperial size.

(C) Make **one** painting with poster colour which you like most from your course of study.

Mark distribution:	total marks 20
1.Compositional arrangement including emphasis on the subject	10
2.Treatment of media(colour mixing)	5
3.Originality,creativity,overall impression	5

COMPUTER SCIENCE

Do the following questions in your notes copy:

Q1.) Answer the questions (i) to (iv) based on the following :

```

class COMP {
    private : char Manufacturer [30];
            char addr[15];
    public: COMP();
            void RCOMP();
            void DCOMP();};
class TOY: public COMP {
    private: char bcode[10];
    public: double cost_of_toy;
            void RTOY ();
            void DT OY();};
class BUYER: public TOY {
    private: char nm[30];
            char delivery date[10];
            char *baddr;
    public: void RBUYER();
            void DBUYER();
};
void main ( ) {
    BUYER MyToy;
}

```

1. Mention the member names that are accessible by MyToy declared in main() function.
2. Name the data members which can be accessed by the functions of BUYER class.
3. Name the members that can be accessed by function RTOY().
4. How many bytes will be occupied by the objects of class BUYER?

Q2) Consider the following declarations and answer the questions given below:

```

class Mydata {
    protected: int data;
    public: void Get_mydata(int);
            void Manip_mydata(int);
            void Show_mydata(int);
            Mydata();
            ~Mydata();
};

```



```

class Personal_data {
    protected: int data1;
    public: void Get_personaldata(int);
           void Show_personaldata(int);
           Personal_data();
           ~ Personal_data (); };
class Person: public Mydata, Personal_data {
    public: void Show_person(void);
           person();
           ~person();
};

```

- i) How many bytes will be required by an object belonging to class Person?
- ii) Which type of inheritance is depicted in the above example?
- iii) List the data members that can be accessed by the member function Show_person()
- iv) What is the order of constructor execution at the time of creating an object of class Person?

Q3) Define a class named ADMISSION in C++ with the following description:

Private Members: AD_NO integer(range 10-2000)
NAME array of characters
CLASS character
FEES float

Public Members:

- Function Read_Data() to read an object of Admission type.
- Function Display() to display the details of an object.
- Function Draw_Nos() to choose 2 students randomly.
- And display the details. Use random function to generate admission nos. to match with AD_NO.

Q4) Define a class Employee in C++ with the following specification:

Private Members:

ename an array of char of size[50] (represent employee name)
deptname an array of char of size[20] (represent department name)
salary integer (represent total salary of an employee)
bonus float

CalBonus() : - This function calculate the total bonus given to an employee according to following conditions

Deptname	Bonus
Accounts	4 % of salary
HR	5% of salary
IT	2% of salary
Sales	3% of salary
Marketing	4% of salary

Public Members:

- Constructor to initialise ename and deptname to NULL and salary and bonus to 0.
- A function read_info to allow user to enter values for ename, deptname,salary & Call function CalBonus() to calculate the bonus of an employee.
- A Function disp_info() to allow user to view the content of all the data members

Q5) Find the output of the following program:

- a.

```
#include void main() {
long Number = 7583241;
int First=0, Second=0;
do {
    int R=Number%10;
    if (R%2==0)
        First+=R;
    else
        Second+=R;
    Number /=10;
} while (Number>0);
cout<< First-Second;
```
- b.

```
#include<iostream.h>
struct Pixel { int c,r; };
void display(Pixel p) {
cout<<<p.c<<<p.r<<endl; }
void main() {
    Pixel x = {40,50}, y, z;
    z= x;
    x.c = x.c + 10;
    y = z;
    y.c = y.c + ;
    y.r = y.r + 20;
    z.c = z.c - 15;
    display(x);
    display(y);
    display(z); }
```

Q6) Write a function in C++ to count and display the no of three letter words in the file "VOWEL.TXT". For eg, If the file contains: A boy is playing there. I love to eat pizza. A plane is in the sky.

Then the output should be: 4

Q7) Write a function in C++ to count the number of lines starting with uppercase characters in a text file "HELP.DOC".

Q8) Write a function CountDig() in C++ which reads the content of a text file story.txt and displays the number of digits in it.

Q9) Write a function CountYouMe() in C++ which reads the contents of a text file story.txt and count the words You and Me.

Q10) (a) A binary file "games.dat" contains data of 10 games where each game's data is an object of the following class :

```
class game{
    int gameno; char game_name[20];
public:
```

```

void enterdetails(){cin>>gameno; gets(game_name);}
void outdetails(){cout<<gameno<<endl<<game_name;}
};

```

With reference to this information, write C++ statement in the blank given below to move the file pointer to the end of file.

```

ifstream ifile; game G;
ifile.open("games.dat",ios::binary|ios::in);
_____ cout<<ifile.tellg();

```

- (a) Write a function Countaroma() to count and display the number of times “Aroma” occurs in a text file “Cook.txt”.

Note : Only complete word “Aroma” should be counted. Words like “Aromatic” should not be counted.

- (b) Given a binary file “SPORTS.DAT” containing records of the following class :

```

class Player
{ char PNO[10];//player number
char Name[20];//Name of player
int rank;//rank of the player
public:
void EnterData()
{ gets(PNO);gets(Name);cin>>rank; }
void DisplayData() {
cout<<setw(12)<<PNO;
cout<<setw(32)<<Name;
cout<<setw(3)<<rank<<endl;
}
int Get_rank() {return rank;}
};

```

Write a function in C++ that would read contents of the file “SPORTS.DAT” and display the details of those players whose rank is above 500.

- Q11) Write the definition of a function FixPay(float Pay[], int N) in C++, which should modify each element of the array Pay having N elements, as per the following rules :

Existing Value of Pay	Pay to be changed to
If less than 10000	Add 25% in the existing value
If >=10000 and <20000	Add 20% in the existing value
If >=20000	Add 15% in the existing value

- Q12) Write the definition of a member function INSERT() for a class QUEUE in C++, to insert an ITEM in a dynamically allocated Queue of items considering the following code is already written as a part of the program.

```

struct ITEM
{

```

```

int INO; char INAME[20];
ITEM *Link;
};
class QUEUE
{
    ITEM *R,*F;
public :
    QUEUE() {R=NULL;F=NULL;}
void INSERT();
void DELETE();
~QUEUE();
};

```

Q13) Create a practical file and do all the practical questions given to you in class as well as in assignments.

Q14) Prepare a Project Report Synopsis on the topics listed below. They have to use C++ as a front end and Text Files as a back end.

The Synopsis Report (Documentation) should contain the following:

- Cover Page – Title of the Project
- Objective & Scope of the Project.
- Methodology adopted, Details of Hardware & Software used.
- Input and Output Interface/Screen Design with Menus etc.
- Structure of Tables (Column Name, data types, size and constraints etc.)

The following topics/ area may be selected:

1. Banking Application
2. Cyber Café Management Application.
3. School Management Application (Admission/Examination/Staff)
4. Invoicing and Billing Application.
5. Accounting System Application.
6. Computerization of Hotels, Restaurant etc.
7. Testing Applications (Quizzes, Games etc.)
8. Library Management System
9. Inventory control system Application
10. Ticket/ Reservation system for Bus/Train /Air etc.
11. Theater Booking System Application.

INFORMATICS PRACTICES

Attempt the following questions:

1. What is DBMS?
2. What is SQL? What is the distinctive feature of MySQL?
3. What do you understand Degree and Cardinality of a Table?
4. What do you mean by Referential Integrity? How is it enforced in DBMS?
5. What is Data Model? Name various Data Models.
6. Differentiate between DDL and DML.

7. Compare CHAR and VARCHAR datatypes.
8. What are the differences between DELETE and DROP command?
9. What is MySQL Server and MySQL Client?
10. What is a Key? Define the following terms in relevance to keys:
 - a. Primary Key
 - b. Candidate Key
 - c. Alternate Key
 - d. Foreign Key
11. What do you mean by Data Dictionary? What does it comprise of?
12. Which function is used to substitute Null values in a query result?
13. Write command to print the day of the week of your birthday in the year 1999.
14. What is the difference between SYSDATE() and NOW() function?
15. What is the role of UNIQUE constraint? How is PRIMARY KEY constraint different from UNIQUE constraint?
16. How would you view the structure of table Dept?
17. What is meant by “Data independence”? Explain difference between Logical and Physical data independence.
18. Which comparison operator is used for comparing?
 - (i) Patterns
 - (ii) character value
 - (iii) null values
 - (iv) ranges
 - (v) list of values
19. Differentiate between:
 - a. DROP TABLE & DROP DATABASE
 - b. DROP TABLE & DROP clause of ALTER TABLE.
20. Write My SQL command to create a table STUDENT with under mentioned structure by using SQL Statement:

StdID	Number	Primary Key
StdName	Character (30)	NOT NULL
Gender	Character(6)	Male or Female
Percentage	Number	
SClass	Number	
Sec	Character	
Stream	Character(10)	Science or Commerce
DOB	Date Date of Birth	
21. Write MySQL commands to open school database.
22. Write MySQL command to select student table.
23. Answer the following questions :
 - a. Write the difference between Primary Key and Unique Key?
 - b. You have the following table CUSTOMER. Identify the required data types for each attributes :

Cust_ID	Customer Identification Number
Cust_Name	Customer Name
Cust_Add	Customer Address
Bill_No	Customer bill Number

24. Find the Output of following :
- SELECT ROUND (1.298,1);
 - SELECT POW(3,4);
 - SELECT LOWER('MYSQL QUERY LANGUAGE');
 - SELECT SUBSTR('MYSQL LANGUAGE', 7,8);
 - SELECT LENGTH('INFORMATION');
25. What is a Transaction?
26. Define the following
- Atomicity
 - Consistency
 - Isolation
 - Durability
27. What are two way in which multiple transactions can be executed?
28. What is Savepoint? What is the role of Savepoint in the Transaction?
29. Describe the following command
- COMMIT
 - ROLLBACK
 - SAVEPOINT

PHYSICAL EDUCATION

1. Prepare your board practical files as per the instructions given by Mr. Neeraj.
2. Learn all the chapters done in the class as per the blueprint given to you.
3. Do all the Questions of the chapters 1,2,3,and 4 done in the class.