ST. ANGEL'S SCHOOL

AUTUMN HOLIDAYS

HOMEWORK(2018-19)

CLASS XII

(SCIENCE)

ENGLISH

Notice – Writing

Q1. The International Book Fair is being held at Pragati Maidan between 7 November-14 November. As the librarian, write a notice informing students about it.

Advertisement – Writing

Q2. You plan to sell your two wheeler. Draft a suitable advertisement in not more than 50 words to be inserted in the classified columns of a local daily, giving all necessary details of the two wheeler. You are Sumit/ Sudha,15,Krishna Nagar,Delhi.

Report-Writing

Q3. You are Sharad/ Shalini ,a reporter for 'The News Indian Express'.Write a report in 100-125 words on the fire accident that took place in the area of Textile Market, Ahmedabad.

Letter-Writing

Q4.You are Ankit/Amrita, staying at 4 ,Pyeroft road, Chennai. You have come across an advertisement in 'The Times of India' for recruitment of computer engineer trainees by Shivani Software. Apply in response to this advertisement giving your detailed bio-data. Invent all necessary details.

Q5. As Librarian of West Coast Senior Secondary School, Green Park Area Kanpur, write a letter to Messer Keerti Book House,31/70 Nirala Nagar,Lucknow,[placing an order for supply of certain books. You are Rajeev/Renu.

Article-Writing

Q6. It can be observed that in every nook and corner, young boys and girls keep on talking on cellphone for hours together .This is not proper use of cellphones.Write an article in 150-200 words for National Daily on the topic ,Cellphone is for communication not for Amusement.

Q7. Write an article for your school magazine on 'The Need for Education

of Girls in the National Development'. (word- limit:200 words)

FLAMINGO

Poem-3: 'Keeping Quiet' by Pablo Neruda

Q -1 What has man single –mindedly focused himself on?

Q-2 What does the poet mean when he says that a chemical war will result in a 'victory with no survivors'?

Poem-4: 'A Thing of Beauty' by John Keats

Q-1 What philosophy of life is highlighted in the poem 'A Thing of Beauty'?

Q-2 How does the poem highlight the poet's immense faith in the Divine Reality?

Poem-5:'Aunt Jennifer's Tigers' by Adrienne Rich

Q-1 Where does Aunt Jennifer seek refuge on being victimized by the male world? Does she find her freedom?

Q-2 Do you think the poem has the veiled message in it? If so, what is it?

VISTAS

Lesson-3: 'Should Wizard Hit Mommy? 'by John Updike

Q-1 A minute study of story 'Should Wizard Hit Mommy?' reveals that it can be convincingly ended at, at least three different levels. Justify.

Q-2 What impression do you form of Jack as a father?

Lesson-4: 'On The Face Of It' by Susan Hill

Q-1 Sympathy is divine, but sometimes it destroys one's confidence and self reliance. Analyse the truth of the statement in the light of the effect of Derek's mother's sympathy on:

- Derek's view of the world
- His own potential.

Q-2 Rather than imposing his own views on Derek, Mr. Lamb talked to him with such a great spontaneity that he got transformed in no time. How according to you Mr. Lamb managed it?

MATHS

DIFFERENTIAL EQUATION

Q1. Find a particular solution of the differential:

$$\frac{dy}{dx} + y \cot x = 4x \operatorname{cosec} x \ (x \neq 0)$$

Gives that y=0 when x=$\frac{\pi}{2}$

Q2. (xdy-ydx) y $\sin\frac{x}{y}$=(ydx+xdy)x $\cos\frac{x}{y}$

Q3. x²y dx −(x³+y³)dy=0

Q4. $\left(\frac{e^{-2\sqrt{x}}}{\sqrt{X}} - \frac{y}{\sqrt{X}}\right)\frac{dy}{dx} = 1 \ \ (x \neq 0)$

Q5. $\frac{dy}{dx}$+ycos $x = 4x$ coesc x

Q6. (x²-1)$\frac{dy}{dx}$+2xy=$\frac{2}{(x^2-1)}$

Q7. $\frac{dy}{dx}$ +ycot x= 2x+x²cot x (x ≠ 0)

Given that y=0 when x=$\frac{\pi}{2}$

Q8. 2y$e^{\frac{x}{y}}$ dx+(y-2x$e^{\frac{x}{y}}$)dy = 0

Given that x=0 when y=1.

CHAPTER 12
LINEAR PROGRAMMING

Q1. A company makes two kinds of leather belts .Belt A is high quality and belt B is lower   quality . The respective profits are Rs. 8 and Rs. 6 per belt . Each belt of type A requires twice as much time as   a belt of type B and if all belts were of type B , company could make 1000 belts per day . The supply of leather is sufficient for only 800 belts per day . Belt A requires a fancy buckle and only 400 buckles per day are available and 700 buckles are available for Belt B . what should be daily production to maximize profit .

Q2. A co-operative society of farmers has 50 hectares of land to grow two crops X and Y. the profit from crop X and Y per hectare are estimated at Rs. 10,500 and Rs. 9000 respectively .To control weeds , a liquid herbicide has to be used for crops X and Y rates of 20 and 10 liters per hectare . further no more than 800 liters of herbicide should be used in order to protect fish and wild life using apond which collects drainage from this land .How much land should be allocated to each crop so as to maximize the profit .

Q3. A manufacturer of patent medicines is preparing a production plan on medicines A and B. There are sufficient row material available to make 20,000 bottles of A and 40,000 bottles of B, but there are only 45,000 bottles into which either of the medicines can be put . Further it takes 3 hours to prepare enough material to fill 1,000 bottles of A , it takes 1 hour to prepare enough material to fill 1,000 bottles of B and there are 66 hours available for his operation . The profit is Rs 16 per bottle for A and Rs 14 per bottle for B . How should the manufacturer schedule his production in order to maximize his profit .

- **Do exercise- 12.1 ,12.2 ,12.3 of chapter 12**

CHAPTER 7

INTEGRATION

Q1 $\int \sqrt{\dfrac{1-x}{1+x}} \ dx$

Q2. $\int_0^{\frac{\pi}{2}} \dfrac{x}{\sin x + \cos x} \ dx$

Q3. $\int \dfrac{x-3}{(x-1)^3} \ e^x dx$

Q4. $\int \dfrac{x^4}{(x-1)(x^2+1)} \ dx$

Q5 $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \dfrac{1}{1+\sqrt{\tan x}} \ dx$

Q6 $\int_{-\pi}^{\pi} \dfrac{2x \ (1+\sin x)}{1+\cos^2 x} dx$

Q7 $\int \dfrac{3x+1}{2x^2-2x+3} \ dx$

Q8 $\int_0^1 \dfrac{\log x}{\sqrt{1-x^2}} dx$

Q9. $\int_0^{2\pi} e^x \cos(\frac{\pi}{4} + \frac{x}{2}) \ dx$

Q10 $\int_0^{\frac{\pi}{4}} \sqrt{\tan x} \ dx$

PHYSICS

Electromagnetic induction and alternating currents

1. State Lenz Law. On which law of conservation is it based?

2. How are eddy currents produced? Give its advantage and disadvantages.

3. Power factor of an a.c. circuit is 0.5. What will be the phase difference between voltage and current in the circuit?

4. What is the significance of a Q-factor in a series LCR resonant circuit?

5. Draw the graph to show the variation of Xc with the frequency of the a.c. source used.

6. A capacitor blocks d.c. Why?

7. The frequency of a.c. source is doubled. How do R, X_L and Xc get affected?

8. Which is more dangerous ac or d.c current for the same value? Why?

9. A lamp is connected in series with a capacitor. Predict your observation for d.c. and a.c. connections. What happens in each case if the capacitance is reduced?

Dual nature of matter and radiations

1 Does a photon have a de Broglie wavelength? Explain.

2.

If kinetic energy of thermal neutron is $\dfrac{3}{2}kT$ then show that de-Broglie wavelength of waves associated with a thermal neutron of mass m temperature T kelvin is $\dfrac{h}{\sqrt{3mkT}}$ where k is boltz mann constant.

3

What is the (i) Speed (ii) Momentum (ii) de-Broglie wavelength of an electron having kinetic energy of 120eV?

[**Ans. :** (a) 6.5×10^6 m/s; (b) 5.92×10^{-24} kg m/s; (c) 0.112 nm.]

4

A proton is accelerated through a potential difference V.Find the percentage increase or decrease in its deBroglie wavelength if potential difference is increased by 21%.

5

A nucleus of mass M initially at rest splits into two fragments of masses $\dfrac{M}{3}$ and $\dfrac{2M}{3}$. Find the ratio of de Broglie wavelength of the fragments.

- **Do back exercise of chapter 9 of NCERT.**

CHEMSTRY

UNIT-7

THE p-BLOCK ELEMENTS

1. Name the geometry of $XeOF_4$ and XeO_3.

2. What is inert pair effect ?

3. Assign reason for the following:

   (a) In solid state PCl_5 behaves as an ionic species.

   (b) The maximum number of covalent bonds formed by nitrogen is 4.

   (c) Among the noble gases only xenon is well known to form chemical compounds.

4. HCl when reacts with finely powdered iron forms ferrous chloride and not ferric chloride. Why?

5. Why ICl more reactive than I_2?

6. Give three oxo acids of nitrogen. Write the oxidation state of the nitrogen in each of them.

UNIT- 9

CO-ORDINATION CHEMISTRY

1. Why is geometrical isomerism not possible in tetrahedral complexes having two different types of unidentate ligands coordinated with central metal ion.

2. Give the electronic configuration of the d-orbitals of Ti in $[Ti(H_2O)_6]^{3+}$ ion in an octahedral crystal field.

3. NH_3 is strong ligand NH_4^+ ion is not, why?

4. Give IUPAC name of the ionization isomer of $[Pt(NH_3)_3NO_2]Cl$.

5. How many moles of AgCl will be precipitated when an excess of $AgNO_3$ is added to a molar solution of $[CrCl(H_2O)_5]Cl_2$?

6. What is the oxidation state of Ni in $[Ni(CO)_4]$?

7. Write the formula of tetrachlorocuprate(II) ion.

8. Describe briefly the nature of $[Fe(CN)_6]^{4-}$ ion. (At. No. of Fe = 26).

BIOLOGY

Chapter : 5

Principle of Inheritance and Variation

1. Does the phenotype gets affected if the modified gene produces less efficient or produce no enzyme?

2. What will be the blood group of persons having no sugar polymers on plasma membrane of RBC?

3. Which phenomenon is indicated by mechanism of blood groups in human beings ?

4. How do point mutations occur?

5. What is pedigree Analysis ?

6. Why did Mendel obtained F3 generation. What has its utility?

7. What are Pleiotrpic genes? Explain with a suitable eg.

8. Why Morgan selected Drosophila for his experiments?

9. Write short note on
    1. systic fibrosis
    2. color blindness
    3. thalasemia

Chapter : 6

Molecular Basis of Inheritance

1. Why RNA is not a suitable genetic material ?

2. Which discovery was made by Avery

3. What are the characteristics of RNA polymerase of a prokaryote?

4. What are UTRs. Explain?

5. a) What is codon and anticodon?
    b) Where are codons and anticodons present?
    c) What is the role of tRNA ?

6. Describe the structure of a ribosome?

7. Some sequence of codons on mRNA is given below:
    AUGCUAUACUUU
    1. What amino acids will be coded by these mRNA codons?
    2. What is the sequence of bases on the DNA that would have transcribed these RNA codons?
    3. What will be the codons present on the coding strand?

8. Mention the goals of HGP?

9. What are the components of lac operon?

10. Differentiate between DNA and RNA?

Chapter : 7

Evolution

1. What is divergent evolution?
2. Define Fossils.
3. How do fossils help in providing evidence that evolution has taken place . Explain with examples?
4. Evolution of antibiotic resistant bacteria is not a directed but is a stochastic action . justify?
5. What are the postulates of the Hugo de Vries theory of evolution?
6. Give an account of history of plant evolution.
7. Mention the consequences of evolution of life on earth.
8. What is directional selection? Gve two examples which have shown directional selection.
9. Explain steady state theory.
10. Write the effects of pesticides on evolution of species.

Chapter : 8

Human health and Diseases

1. What is health?
2. What are the different categories of diseases?
3. How many types of immunities do we possess?
4. What characteristics should be possessed by a pathogen? Explain with the help of example.
5. What precautions are taken at the time of transplanting an organ loke liver and kidney?
6. Differentiate between interferons and antibodies?
7. Mention the factors which affect health?
8. Mention the functions of serotonin, histamine, interferons?
9. What are the harmful effects of nicotine in human body?
10. Describe passive immunity?

COMPUTER SCIENCE

- **Complete Practical File with at least 15 SQL commands and at least 20 C++ programs (including 4 programs of Linked List (Chapter 10) and Arrays)**

- **Complete Practical File**

LESSON-5 CONSTRUCTORS AND DESTRUCTORS

1. What is a constructor? Give example.

2. What is a destructor? Give example.

3. What is a copy constructor? Give example.

4. What is a constructor overloading? Give example.

5. Given the following C++ code, answer (i) and (vi)

```
#include<iostream.h>
class readbook
{ int ch;
public:

readbook()                      // function 1
{ cout<<"\n open book"<<endl;}

void readbook(int ch1)        // function 2
{ ch=ch1;cout<<"\n initializing book"<<endl;}

~readbook()                            // function 3
{ cout<<"\n close book"<<endl;}

readbook(readbook &r)      // function 4
{ -----------------------------------}
```

(i) In Object Oriented Programming, what is function 1 referred as and when it get invoked/ called?
(ii) In Object Oriented Programming, what is function 2 referred as and when it get invoked/ called?
(iii) In Object Oriented Programming, what is function 1 & function 2 referred as and when it get invoked/ called?
(iv) In Object Oriented Programming, what is function 3 referred as and when it get invoked/ called?
(v) In Object Oriented Programming, what is function 4 referred as and when it get invoked/ called?
(vi) Complete the missing lines of function 4.

6. Define a class Play in C++ with the following specification :

Private members of class play

Playcode   integer

Playtitle   string

Duration   float

No_scenes   integer

Public members of class play

Constructor function   initialize duration as 20 and no_scenes as 15.

Newplay()   accept playcode and playtitle

Moreinfo()   assign the values of duration and no_scenes with the help of corressponding parameters passed to the function

Showplay()   display all data members on screen

7.   Give the output of the following program :

```
#include <iostream.h>

class A

{

public :

A() { calculate(); cout<<"constructor"; }

void calculate() { show(); cout<<"\n calculating";}

void show() { cout<<"displaying";}};

void main() { A A1;}
```

LESSON –14 COMPUTER NETWORK

1. What is network? What is its use?
2. Define Bandwidth. Give its unit.
3. Write significance of ARPANET.
4. Expand following :

(i)   CDMA   (ii)   GSM   (iii)   HTML   (iv)   XML
(v) FLOSS   (vi)   GNU   (vii)   FSF   (viii) OSI
(ix) TCP/IP   (x)   FTP   (xi)   PPP   (xii)   WLL
(xiii) IPR   (xiv)   PHP   (xv)   ASP   (xvi)   JSP
(xvii) HTTP   (xviii) SMS   (xix)   URL   (xx)   Mbps

5. Explain Switching techniques.
6. Define firewall.
7. Write two application of Cyber Law.
8. Give two reasons to have network security.
9. What is the purpose of using a web browser? Name some commonly used web browsers.
10. Write advantages and disadvantages of bus and star topology
11. What is Telnet?

PSYCHOLOGY

Chapters covered- Ch-5 Psychological Disorders, Ch-6 Attitude and Social Cognition

1. Define attitude. Discuss the components of an attitude.
2. What are the factors that influence the formation of an attitude?
3. Explain the Trauma and Stressor related disorder.
4. Differentiate between prejudice and stereotype.
5. What are the Neuro- Development Disorders?
6. Highlight the importance of schemas in social cognition.
7. Describe the schizophrenia Spectrum and other psychotic disorders.

PHYSICAL EDUCATION

Ques 1 Your elder brother is working in a reputed company at a high post. He works for long hours on computer for the past few days, He has been suffering from blurred vision. Even after taking the balance diet he is felling weak.

He had a wound on his leg which do not heel even after a medical treatment. Based on the given context, answer the following question

(i) Name the disease your brother is suffering from?
(ii) Which asana will you suggest to cure the disease? Briefly explain the procedure of any one of them?
(iii) Write two values necessary for a healthy life?

Ques-2 what are life style disease? How can u prevent this disease with the help of asana?

Ques-3 You see a person on a wheel chair who want to go the second floor of the building. What will you do to help the person?

Ques-4 If you are therapist, how will you counsel the parents of a child who has optional defiant disorder?

"All the students must wear winter uniform from 22-October 2018, excluding blazers or sweaters."