JKG INTERNATIONAL SCHOOL VIJAY NAGAR GHAZIABAD
HOLIDAY HOME WORK (2018-19)
CLASS –XII (PCM)

English Core:

FLAMINGO:

1. What was tempting for Franz to keep away from school that day?
2. Who did M.Hamel blame for the neglect of learning on the part of boys like Franz?
3. What were Franz's regrets after M.Hamel announcement of his last lesson?
4. What changes did the order from Berlin cause in the school?
5. Explain the significance of the title LOST SPRING ?
6. Why could the bangle makers not organize themselves into a cooperative?

VISTAS:

1. How did the Tiger king celebrate his victory over the killing of the hundredth tiger?
2. What traits of the Maharaja and the british officer are exposed and satirized through the episode of refusal of permission for tiger hunt by the british officer?
3. Why was the Maharaja sunk in gloom? Was he able to overpower it?
4. How does the hundredth tiger take its final revenge upon the tiger king?
5. How did the Maharaja succeed in raising his tiger tally to ninety –nine?
6. Why was Dr.Sadao being kept in Japan and not sent abroad with the troops?
7. What dilemma did Sadao face about the young white man ?
8. How did the servants react when their master told them about the wounded white man?
9. What two things happened on the seventh day after that?
10. Why do you think did the old General not want Dr Sadao to be asserted?
11. What plan did the old General suggest to Dr. Sadao for getting rid of the enemy soldier?

Chemistry:

I. Answer the following questions in Chemistry notebook:

1. Define and Give two examples of each.
   (a) Ferromagnetic substances (b) Ferrimagnetic substances
2. Give an example which shows both frenkel and Schottky defect.
3. Which type of ionic substances show? Schottky defect (b) Frenkel defect
4. Define – (a) void (b) coordination Number
5. What is the packing efficiency in
   (a) hcp structure (b) BCC structure (c) Simple cubic structure
6. Copper which crystallizes as a face – centred cubic lattice has a density of 8.93 g/cm^3 at 20^o C. calculate the length of the unit cell.
7. An element crystallizes in BCC structure. The edge of its unit cell is 288 pm. If the density is 7.2g/cm^3, calculate the atomic mass of the element.
8. Give difference between crystalline and amorphous solid.
9. The boiling point elevation of 0.6 g acetic acid in 100g benzene is 0.1265k. What conclusion can you draw about the state of solute in solution? Molar elevation constant for benzene is 2.53 deg per molar?
10. A weak electrolyte AB in 5% dissociated in aqueous solution? What is the freezing point of a 0.10 molar aqueous solution of AB? Kf = 1.86 deg/molal?
11. The osmotic pressure of a 0.0103 molar solution of an electrolyte is found to be 0.70 atm at 273^0C. Calculate van't Hoff factor. R=0.082 L atm/ mol/k?

12. When is the value of i less then unity?
13. The molecular mass of a solute is 120 g/mol and van't Hoff factor is 4. What is its abnormal molecular mass?
14. Draw the graphs of both deviations from ideal behaviours?
15. The activation energy of reaction is 75.2 KJ/mol in the absence of a catalyst and 50.14 KJ/Mol in the presence of a catalyst. How many times will the reaction grow in the presence of a catalyst, if the reaction proceeds at 25^0C?
16. The rate of a particular reaction quadruples when the temperature changes from 293 K to 313 K. Calculate activation energy for such a reaction.
17. Define the following term with suitable example

    Antacid Antihistamin Tranquilisers Analgesics Narcotics Antipyratics
    Antimicrobial Antibiotics Antiseptics Disinfectant Antifertility drugs
    Artificial swetners Food preservatives Antioxidant Anionic detergents Cationic detergents
    Non-ionic Detergents

II Prepare investigatory project file for AISSCE-2018 under the title of:

• Certificate • Acknowledgement • Why this was selected? (related to daily life) • Introduction • Details of the project(research related to the topic) • Experiment (detailed manner including procedure) • Observations • Analysis • Result • Bibliography (mention the links)

III Practice for the following topics in chemistry notebook:

a) Nomenclature (minimum 20 organic compounds)

b) Mechanisms done in organic chemistry

Math:

Chapter – 2

1. Find the value of : $Cot\left[\frac{\pi}{2}-2Cot^{-1}\left(\sqrt{3}\right)\right]$
2. Find the value of : $Tan^{-1}\left(\sqrt{3}\right)-Cot^{-1}\left(-\sqrt{3}\right)$
3. Show that : $Tan^{-1}\left(\frac{1}{2}\right)+Tan^{-1}\left(\frac{2}{11}\right)=Tan^{-1}\left(\frac{3}{4}\right)$
4. Solve for x : $Tan^{-1}\left(x+1\right)+Tan^{-1}\left(x-1\right)=Tan^{-1}\left(\frac{8}{31}\right)$
5. Solve for x : $Sin^{-1}\left(1-x\right)-2Sin^{-1}\left(x\right)=\frac{\pi}{2}$

Chapter – 3

1. If $\begin{bmatrix} xy & 4 \\ z+6 & x+y \end{bmatrix}=\begin{bmatrix} 8 & w \\ 0 & 6 \end{bmatrix}$, then find the value of $\left(x+y+z\right)$
2. If $\mathrm{A}=\begin{bmatrix} 5 & 2 \\ 1 & 7 \end{bmatrix}$, show that $A^2-12A+33I=0$

3. If A = $\begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$ and $f(x) = x^2 - 5x + 6$, find $f(A)I$

4. If A = $\begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$, then find $A^2 - 5A + 4I$ and hence find a matrix X such that $A^2 - 5A + 4I + X = 0$

5. If A = $\begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}$ and B = $\begin{bmatrix} a & 1 \\ b & -1 \end{bmatrix}$ and $(A+B)^2 = A^2 + B^2$, then find the values of a and b.

Chapter – 4

1. Using properties of determinants, show that:
$$\begin{vmatrix} 1+a & 1 & 1 \\ 1 & b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = abc\left(1+\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right) = abc + ab + bc + ca$$

2. Using properties of determinants, show that : $\begin{vmatrix} a^2+1 & ab & ac \\ ab & b^2+1 & bc \\ ca & cb & c^2+1 \end{vmatrix} = \left(1 + a^2 + b^2 + c^2\right)$

3. Using properties of determinants, show that : $\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = \left(1+a^2+b^2\right)^3$

4. Solve by matrix method : $\begin{cases} \frac{2}{x} - \frac{3}{y} + \frac{3}{z} = 10 \\ \frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 10 \\ \frac{3}{x} - \frac{1}{y} + \frac{2}{z} = 13 \end{cases}$ $x \neq 0, y \neq 0, z \neq 0$

5. A school wants to award its students for the value of honesty, regularity and hard-work with a total cash award of Rs 6000. The three times award money for hard work added to that given for the honesty amount to Rs 11000. The award money given for honesty and hard-work together is double the one given for regularity. Represent the above situation algebraically and find the award money for each value, using matrix method. Apart from these values namely, honesty, regularity and hard-work, suggest one more value which the school must include for award.

Chapter – 5

1. If a function defined as $f(x) = \begin{cases} 3ax^2 + 5bx, if x \geq 1 \\ 5ax - 3b + 18, if x \leq 1 \end{cases}$ is differentiable, find the values of a and b.

2. If $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$, then prove that $\frac{dy}{dx} = \sqrt{\frac{1-y^2}{1-x^2}}$

3. If $y = (x)^{\sin x} + (Tanx)^x$, find $\frac{dy}{dx}$

4. If $y = 3Sin\theta - 2Sin^3\theta$ and $x = 3Cos\theta - 2\cos^3\theta$, find $\frac{dy}{dx}$
5. If $x^m y^n = (x+y)^{m+n}$, Prove that $\frac{dy}{dx} = \frac{y}{x}$.

Physics:
Answer the following questions in Physics notebook.

1. State and Explain the following – Quantization of charge , Conservation of charge , Coulomb's law in vector form and Principle of Superposition of charges .
2. A charge is placed at the centre of the line joining two equal charges Q . Show that the system of three charges will be in equalibrium if q = Q/4 .
3. Derive an expression for the potential energy of an electric dipole in a uniform electric field.
4. Derive an expression for the electric field intensity due to a dipole at any point lying on its axial line or on the equatorial line.
5. Derive an expression for the electric potential at any point due to an electric dipole.
6. State and prove Gauss law in electrostatics and use it to find the electric field at a point due to a charged spherical shell and due to an infinitly long thin sheet of charge .
7. What is capacitance and define its unit . Derive an expression for the capacitance of a parellel plate capacitor when a dielectric slab of thickness t is filled between its plates.
8. Define the resistivity of a material. State its SI unit and discuss its variation with temperature for metals , insulators and semiconductors.
9. State Kirchhoff's laws and use these laws to establish Wheatstone Bridge. How will you find the specific resistance of a material using a Meter Bridge .
10. What is Potentiometer. Explain its principle and how will you compare e.m.f. of two primary cells . Explain with a circuit diagram . Write two precautions to be taken during this experiment.
11. What is a Cyclotron ? Describe its principle, construction ,working theory and its limitations .
12. Discuss with the help of a neat diagram the principle , construction and theory of a moving coil galvanometer. Also explain the current sensitivity and voltage sensitivity of a galvanometer. What are the factors affecting the sensitivity of a galvanometer .
13. What are the elements of earth's magnetic field . Explain them briefly.
14. State and explain Curie law in magnetism. Write three characteristic properties to distinguish between para , dia and ferro magnetic materials.
15. (a) which material is used in making permanent magnets and why ? (b) why is soft iron preferred for making the core of a transformer ?
16. What do you mean by Bohr Magneton ? An electron in an atom revolves around the nucleus in an orbit of radius 0.53 $A^{0.}$ Calculate the equivalent magnetic moment , if the frequency of revolution of electron is 6.8 x $10^{9\ MHz}$.
17. State and explain Faraday's laws of electromagnetic induction. How magnetic flux can be changed linked to a coil ?
18. A wheel with 10 metallic spokes each 50 cm long is rotated with a speed of 120 rpm , in a plane normal to earth's magnetic field at the place .If the magnitude of the field is 0.40 Gauss, what is the induced e.m.f. between the axle and the rim of the wheel.
19. Explain the phenomenon of mutual induction . Define coefficient of mutual inductance. What are its units? Calculate coefficient of mutual inductance between two long solenoids.
20. What is meant by r.m.s. Value of a.c. ? Derive an expression for r.m.s. value of alternating current and e.m.f. .

21. How does the term electric resistance differ from impedance ? With the help of a suitable phasor diagram , obtain a relation for impedance in an a.c. series LCR circuit .
22. Obtain an expression for the frequency of oscillator when a capacitor discharges itself through an inductor.
23. Calculate the frequency of series resonant circuit. Define Q factor of this circuit.
24. Derive an expression for the average power in LCR circuit connected to a.c. supply. Hence define a power factor.
25. Describe principle, construction and working theory of an a.c. generator.
26. What is a transformer? Explain its principle, construction and working theory. What are various types of losses in a transformer. What are the uses of transformer ?
27. What is displacement current ? Explain the consistency of current through charging and discharging of a capacitor using Maxwell - Ampere Circuital law
28. What are the characteristics of electromagnetic waves ?
29. What is electromagnetic spectrum and state the uses of various types of electromagnetic radiations .
30. The magnetic field in a plane electromagnetic wave is given by $B_{y = 3x10^{-7}}$ sin (1.5×10^3 x + 4.5×10^{11}) T. What is the wavelength and frequency of the wave and write an expression for the electric field?

Hindi Core:

1. भक्तिन लेखिका के घर नौकरी करने क्यों आ गई?
2. भक्तिन के जीवन क्रम के बारे में लिखिए।
3. बाज़ार दर्शन से आप क्या समझते हैं?
4. लोगों से बाज़ार क्या कहता है?
5. यदि सूखा पड़ जाए तो लोगों के सामने किस प्रकार की स्थिति उत्पन्न हो जाती है?
6. 'काले मेघा पानी दे' पाठके आधार पर जल और वर्षा के अभाव में गाँव की दशाका वर्णन कीजिए।
7. यदि आप धर्मवीर भारती के स्थान पर होते तो जीजी के तर्क सुनकर क्या करते और क्यों?
8. लुट्टनसिंह को राज पहलवान की उपाधि कैसे मिली?
9. बीमारियो की विभीषिका से क्रंदन करता हुआ गांव और अधिक भयावह रूप किन परिस्थितियों में ग्रहण कर लेता था।
10. 'आत्मपरिचय' कविता का सार अपने शब्दों में लिखिए।
11. 'पतंग' कविता का सार अपने शब्दों में लिखिए।
12. 'कविता के बहाने' कविता का परिचय लिखिए।
13. वाई डी पंत का आदर्श कौन था ? उसके व्यक्तित्व की तीन विशेषताएँ लिखिए।
14. जूझ के कथानायक के चरित्र की तीन विशेषताएँ लिखिए।
15. 'अतीत में दबे पाँव' पाठ के आधार पर किन्ही तीन दृश्यों का परिचय दीजिए।

Phy Education:

1) Make a practical field based on the following points --
i) Acknowledgement.
ii) Physical fitness -AAPHER.
iii) standard score chart for AAPHER test.
iv) Athletics Middle and long distance race and throws. (Any two events)

2)Health fitness activities -Asana/ Swiss ball/ Aerobics.

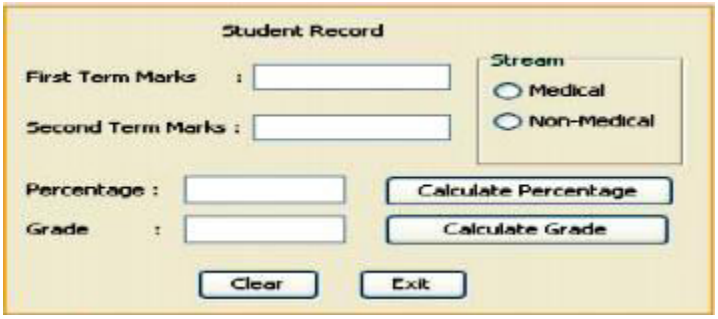
3)Draw a neat diagram of field/ court any one game (Basketball, Hockey, kho-kho, Volleyball).
i) History Of the game.
ii) Latest general rules.
iii) specification of play playfield and

Related sport equipment.
iv) Fundamental skills of the game.
v) Related sports terminologies.
vi) Sports award.
vii) Important tournament and venues.
viii) Specific exercise of warm up.
ix) Common sports injuries and its prevention.
x) sport personality.

Informatics Practices:

A programmer is required to develop a student record. The school offers two different streams, medical and non-medical, with different grading criteria.

The following is the data entry screen used to calculate percentage and grade.



(1)Write the code to disable the txtPercentage and the txtGrade text fields.

(2) Write the code for the cmdClear button to clear all the text fields.

(3) Write the code for the cmdCalcPerc button to calculate the percentage to display in text field txtPercentage, after finding the total marks of first term and second term (assuming that both marks are out of 100).

(4) Write the code for the cmdCalcGrade button to calculate the grade to display in text field txtGrade, depending on the stream selected according to the criteria in the following table:

Stream	Percentage	Grade
Medical	>=80	A
	60 – 80	B
	<60	C
Non Medical	>=75	A
	50 – 75	B
	<50	C

C. Art:

1. Earrings from beads/Quilling.
2. Pot decoration, 12” minimum
3. Any creativity from plastic bottle
4. Lamp Shade or Frame from CD/Buttons/Bulbs
5. Paper Bag.
6. Prepare pages- Miniature, Story/Greetings/Kerala Mural.