BCM SCHOOL
Chandigarh Road, Ludhiana
Summer Holidays Homework (2019-20)
Class XII- Science

ENGLISH

1. Ronit Narang has been selected to play in cricket matches as a member of the famous Kolkata Knight Riders. To celebrate his selection, his parents Sudhir and Sunita Narang want to give a party for him at the Park Hotel, Ranchi. Write an invitation to Ronit's friend Misha/ManasArora inviting him/her for the same.

2. You are the Principal of St. Mary's School, New Delhi. You wish to invite the Joint Commissioner of Police (Traffic) to hold a demonstration for the observance of ' Safety Week' at your school. Draft a formal invitation for the same.

3. Nowadays, people have become so busy with their own lives that they have forgotten the little pleasures of life. We have forgotten how to enjoy quiet walks or sit with a cup of tea or coffee and just enjoy the scenery. Write a speech reminding your friends about the simple pleasures of life that are taken for granted. You are Meera/MohitKapoor.

4. 'Private cars should be banned in the congested commercial areas of the cities.' Write a debate in about 150-200 words either for or against the motion.

5. MMD School, Nashik, recently organized a science symposium on the topic: 'Effect of Pollution on Quality Of Life'. Write a report on the event for your school magazine in about 120-150 words.

Holidays home work must be done in English Classwork Notebook.

Biology

1. Complete the practical note-book.

Complete investigatory project on any one of the following topics:
- Global Warming
- Deforestation and the effects on the ecosystem.
- Stem cell research
- Cloning in livestocks to increase the herd size and farm productivity
- Varietal improvement in important crop plants(New varieties developed and recommended for cultivation in North India.
- New findings with regard to important diseases, etiology and treatment.
- Application of biotechnology for production of important products for human welfare-New findings.
- New medical technology for molecular diagnosis of diseases.
- Assisted reproductive technologies.
- Integrated pest management
- Organic farming- various inputs and the desired effects on the environment.

CHEMISTRY

Complete file on investigatory project. (9-10 pages).
Suggested topics are:
1. Study of the presence of oxalate ion in guava fruit at different stages of ripening.
2. Study of quantity of casein present in different samples of milk.
3. Study of digestion of salivary amylase and effect of pH and temperature.
4. Study the electrochemical theory of rusting of iron.
5. Study the Foaming capacity of different samples of various soap.
6. To collect the various samples of polymers and study their chemistry.
7. To study and collect the following drugs and discuss their action and physiological effects.
Tranquilizers b) antihistamines
8. Construct and explain the working of Daniel cell.
9. To analyse the constituent present in cold drink.
10. Discuss the oxidizing action of potassium dichromate and potassium permanganate.
11. To study and analyse ideal and non-ideal solution.
12. To construct any one space lattice and discuss its properties.

Any of your choice relevant to syllabus of chemistry.
I. Following point may be covered under project:
a. Acknowledgement
b. Certificate
c. Introduction of the project
d. Experimentation and working
e. Bibliography
II. A separate copy to be prepared of NCERT question answer of chapter 'Electrochemistry' and 'Alcohol, Phenol and Either'.
III. Practical file should be completed which have been performed in lab till date.

Physics

Complete a file *of Investigatory Project.* (7-8 pages). Suggested topics are:
1.   Full Wave Rectifier
2.   Bridge rectifier
3.   Transformer
4.   Fire alarm
5.   Rain alarm
6.   Water level indicator
7.   Running light circuit
8.   Logic gates
9.   Astronomical and Terrestrial telescope
10. Metal Detector
11. Car battery charger circuit
12. To design an automatic wireless emergency light
13. Disco light circuit

Following points may be covered in the project file
a.   Acknowledgement
b.   Certificate
c.   Introduction of project
d.   Components required
e.   Brief introduction of components
f.   Working of circuit
g.   Related neat and clean pictures and diagrams
h.   Applications and diagrams

I.   **A separate copy to be prepared of NCERT questions covering units 1, 2 and 3.**
II. **Practical file should be completed covering those practical's which have been performed in laboratory.**

Maths

Q.1: Find the value of 'a' for which the function f defined as

$$f(x) = \begin{cases} a \sin \frac{\pi}{2}(x+1) & x \le 0 \\ \frac{tanx - sinx}{x^3} & x > 0 \end{cases}$$ is continuous at x=0

Q.2: If $x^y + y^x = (x+y)^{x+y}$, find $\frac{dy}{dx}$.

Q.3 : Determine the values of a, b & c for which the function

$$f(x) = \begin{cases} \frac{\sin(a+1)x + sinx}{x} & x < 0 \\ c & x = 0 \\ \frac{\sqrt{x+bx^2} - \sqrt{x}}{b\sqrt{x^3}} & x > 0 \end{cases}$$ may be continuous at x=0.

Q.4: Show that the function f(x) = $\begin{cases} x^m \sin\left(\frac{1}{x}\right) & , x \ne 0 \\ 0 & , x = 0 \end{cases}$

is (i) differentiable at x = 0 , if m > 1 (ii) not differentiable at x = 0 , if $0 < m < 1$.

Q.5 : If $x = \sec\theta - \cos\theta$ and $y = \sec^n\theta - \cos^n\theta$, then show that : $(x^2 + 4)\left(\frac{dy}{dx}\right)^2 = n^2(y^2 + 4)$.

Q.6 : Show that f(x) = $\dfrac{\sin 3x}{\tan 2x}$ if x < 0

$\dfrac{3}{2}$ if x = 0   is continuous at x = 0 .

$\dfrac{\log(1+3x)}{e^{2x}-1}$ if x > 0

Q.7 : If $y = [\log(x + \sqrt{x^2 + a^2})]^2$, show that $(x^2 + a^2)\dfrac{d^2y}{dx^2} + x\dfrac{dy}{dx} - 2 = 0$.

Q.8 : If $y = \sin^{-1}\left[x\sqrt{1-x} - \sqrt{x}\sqrt{1-x^2}\right]$ and $0 < x < 1$ then find $\dfrac{dy}{dx}$.

Q.9 : Differentiate $\tan^{-1}\dfrac{\sqrt{1-x^2}}{x}$ with respect to $\cos^{-1}(2x\sqrt{1-x^2})$ where $\dfrac{1}{\sqrt{2}} < x < 1$.

Q.10 : If $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x - y)$, prove that $\dfrac{dy}{dx} = \sqrt{\dfrac{1-y^2}{1-x^2}}$.

Q.11 : If $x = \sin t$ and $y = \sin pt$, prove that $(1 - x^2)\dfrac{d^2y}{dx^2} - x\dfrac{dy}{dx} + p^2y = 0$.

Q.12: Using mean value theorem, prove that there is a point on the curve $y = 2x^2 - 5x + 3$ between the points
A(1 , 0) and B(2 , 1) where tangent is parallel to chord AB. Also find that point .

Q.13: Show that the line $\dfrac{x}{a} + \dfrac{y}{b} = 1$ touches the curve $y = b\, e^{\frac{-x}{a}}$ at the point where the curve intersects
the
axis of y .

Q.14: Find the angle of intersection of the curves $y^2 = x$ and $x^2 = y$.

Q.15: Find the intervals in which the function $f(x) = \sin^4 x + \cos^4 x$, $0 \le x \le \dfrac{\pi}{2}$, is strictly increasing or
decreasing .

Q.16: If $x = \tan\left(\dfrac{1}{a}\log y\right)$, then show that $(1 + x^2)\dfrac{d^2y}{dx^2} + (2x - a)\dfrac{dy}{dx} = 0$.

Q.17: If $y = \dfrac{2}{\sqrt{a^2 - b^2}}\tan^{-1}\left(\sqrt{\dfrac{a+b}{a-b}}\,\tan\dfrac{x}{2}\right)$, prove that $\dfrac{dy}{dx} = \dfrac{1}{a - b\cos x}$, a > b > 0 .

Q.18: Find the equations of the tangent and normal lines to the curve $y = t^2 + 4t + 1$ and $x = t^2 + t + 1$ at
the
point (3, 6) .

Q.19 : Find the equations of the tangent and normal lines to the curve $16 x^2 + 9y^2 = 144$ at (x_1 , y_1)
where $x_1 = 2$ and $y_1 > 0$. Also find the points of intersection where both tangent and normal cut
the x- axis.

Q.20 : Show that the curves $x^2 + y^2 = 2a^2$ and $xy = a^2$ touch each other .

Q.21 : If $y = x\log\left(\dfrac{x}{a+bx}\right)$ then show that $x^3\left(\dfrac{d^2y}{dx^2}\right) = \left(x\dfrac{dy}{dx} - y\right)^2$.

Q.22 : Find $\dfrac{d^2y}{dx^2}$ at $\theta = \dfrac{\pi}{6}$ if $x = a\cos^3\theta$, $y = a\sin^3\theta$.

Physical Education:

Project:

*To be done on coloured A 4 sheets

*Maximum number of pages 15-20

1.(1)Motor fitness test and (2) General motor fitness test

2.Procedure for administering Senior Citizen Fitness test for 5 elderly family members.

Practical File:

*To be done in physical education practical file

1.Athletics- Labelled diagram of 400m Track and Field with computation.

2.Procedure for Asanas, benefits and contraindications for any two asanas for each lifestyle disease.

3.Labelled diagram of field and equipment of Volleyball with all the Rules, Terminologies and Skills of the
game.

HOME SCIENCE

Q1. Name the ingredients of ORS, recommended by WHO.

Q2. What are the social issues have been focused under DWACRA?

Q3. Which five points you will kept in mind while storing drinking water in the house?

Q4. A family is served a meal consisting of dal, rice, curd and chapattis. Evaluate this meal and suggest modification along with reasons. What additional changes are necessary, if this meal is served to lactating mother and why?

Q5. List the objectives of DWACRA.

Q6. Meal planning is influenced by age and occupation. Support this statement with two examples each.

Q7. Name the diseases caused by impure water. How will you make water potable with the help of alum?

Q8. Explain the principles of meal planning with example

Q9. Giyani, a 16 years old girl, tried to commit suicide due to her failure in board exams for last two years. Recognize the state
of Giyani undergoing. Define it in short and write its five common symptoms.

Q10. Write two disadvantages an adolescent may suffer from if he/she is not a member of any group?

Q11. Within 15 days of getting your juicer-mixer repaired, it stopped working. State the two ways to deal with this problem.

Q12. People suffering from jaundice need to be very careful about their diet. Give four dietary points they should adopt?

Q13. Marsh is a laborer who does hard physical labor for about 12 hours a day. Enumerate four factors that his wife must kept in mind while preparing his lunch.

Q14. Abita is a house wife. She wants to save fuel by meal planning. Suggest her some ways of doing this.

Q15. Plan a day's menu for an adult suffering from diarrhea. Also make a list of practical considerations that you will kept in mind before planning menu.

Q16. Certain chemicals are used for purification of water. Given below are some chemicals which are used for same purpose. Explain them in short.   Chlorine   Bleaching powder

Q17. Economic status has a great effect on cognitive development. Explain the statement in brief.

Q18. Intoxication is a curse that harms the entire prospects of teenagers. Enumerate various ways in which its bad effects are manifested.

Q19. Due to intense work pressure at home and office, working women sometimes suffer from stress that results in Hypertension. Define hypertension. What are its symptoms that can help in diagnosing the problem?

Q20. Name the food products which do not contain sodium.

Q21. Write four social traits which develop in adolescence.

Q22. Games play an important role in cognitive development. How do they inculcate the social values in the adolescents?

Q23. Mr. Sharma lives in a joint family comprising of different individuals. Each member has its own particular nutritional needs according to their age, gender, occupation, health status etc. Explain how their meal planning is affected by it.

Q24. What are the important things you will kept in mind while planning a meal for a pre-scholar?

Q25. Media effects the selection of food in both negative and positive ways. Give examples of adverse effect of media on selection of food.

PROJECT:
- Write a report on the needs and problems of old age.
- Write a report on the needs and problems of adolescents.

FINE ARTS

- ➢ Practical : Compositions sheet -5
- ➢ Landscape sheets - 5
- ➢ Still life copied - 1
- ➢ Decorate your file cover
- ➢ Make headings of still life, landscapes, compositions.
- ➢ Theory: Learn unit-1 and 2.
- ➢ Rajasthani, pahadi, mughal, Deccan school.

Computer Science:

Revision of Ch. 1 to 5, 9 with back exercise and sample question paper given.

IP:
Revise chapter 1 & 2.

*Music:***Revise whole syllabus done in the class.**