JAGANNATH INTERNATIONAL SCHOOL
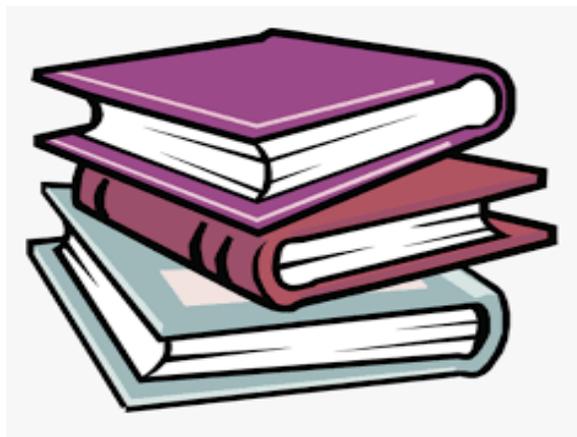
PUSHPANJALI ENCLAVE, PITAMPURA, DELHI

2022-23

CLASS XII

ENGLISH

1. Compile a project on general topics as discussed. Take out the printouts or do handwritten project. Arrange the work in a file.
   Some General Topics (for reference):
   - ➢ Child Labor
   - ➢ Environment
   - ➢ Save Earth
   - ➢ Currency
   - ➢ Personality
2. Revise the syllabus done so far.

MATHEMATICS

Q1. Check bijectivity of the function f : [0,∞)→ R given by f(x) = $\frac{x}{x+1}$

Q2. Find the difference between the maximum and minimum value of $\sin^{-1} x$ for x € [-1,1]

Q3. Draw the graphs of all inverse trigonometric functions and mention their principal value branch.

Q4. If the area of a triangle is 35 sq. units with vertices (2,-6),(5,4) and (k,4), then find the value of k.

Q5. Give an example of a function which is

(i) Both continuous and differentiable

(ii) Continuous but not differentiable

(iii) Differentiable but not continuous

(iv) Neither continuous nor differentiable

Also show the work.

Q6. If $x^y = e^{x-y}$, then find $\frac{dy}{dx}$

Q7. Let f : N→N be a function defined as f(x) = $9x^2 + 6x - 5$. Show that f is invertible. Also find the inverse of f.

Q8. Find the value of $\tan^{-1}\{2 \cos(2 \sin^{-1} \frac{1}{2})\}$

Q9. If A and B are matrices of order 3×n and m×5 respectively, then find the order of the matrix 5A-3B.

Q10. Use matrix method to solve the equations : x + 3y + 4z = 8, 2x + y + 2z = 5, 5x + y + z = 7

Q11. For real number x and y , define xRy iff x – y + √3 is an irrational number. Check its reflexivity, symmetry and transitivity.

Q12. For what value of k is the function $f(x) = \begin{cases} \frac{Sin\ 5x}{3x} + Cos\ x, & x \neq 0 \\ k, & x = 0 \end{cases}$ is continuous at x = 0 ?

BUSINESS STUDIES

1. Prepare the project work on the topic allotted-
- ❖ Project A : MARKETING MANAGEMENT
- ❖ Project B :BUSINESS ENVIRONMENT
- ❖ Project C :- STOCK EXCHANGE
- ❖ Project D :- PRINCIPLES OF MANAGEMENT

Project A: MARKETING MANAGEMENT

(A.) On the basis of the work done by the students the project report should include the following

1. Why have they selected this product/service?
2. Find out '5' competitive brands that exist in the market.
3. What permission and licenses would be required to make the product?
4. What are your competitors Unique Selling Proposition [U.S.P.]?
5. Does your product have any range give details?
6. What is the name of your product?
7. Enlist its features.
8. Draw the 'Label' of your product.
9. Draw a logo for your product.
10. Draft a tag line.
11. What is the selling price of your competitor's product?
(i) Selling price to consumer
(ii) Selling price to retailer
(iii) Selling price to wholesaler
12.   What is the profit margin in percentage to the
a. Manufacturer.
b. Wholesaler.
c. Retailer.
13. How will your product be packed?
14. Which channel of distribution are you going to use? Give reasons for selection?
15. Decisions related to warehousing, state reasons.
16. What is going to be your selling price?
(i) To consumer (ii) To retailer (iii) To wholesaler
17. List 5 ways of promoting your product.
18. Any schemes for
(i) The wholesaler (ii) The retailer (iii) The consumer
19. What is going to be your 'U.S.P?
20. What means of transport you will use and why?
21. Draft a social message for your label.
22. What cost effective techniques will you follow for your product.
23. What cost effective techniques will you follow for your promotion plan.

At this stage the students will realize the importance of the concept of marketing mix and the necessary decision regarding the four P's of marketing.
A. PRODUCT   B. PLACE   C. PRICE   D. PROMOTION

Project B: BUSINESS ENVIRONMENT

1. Changes witnessed over the last few years on mode of packaging and its economic impact. It include the following changes:

a) The changes in transportation of fruits and vegetables such as cardboard crates being used in wooden crates, etc. Reasons for the above changes.

b) Milk being supplied in glass bottles, later in plastic bags and now in tetra pack and through vending machines.

c) Plastic furniture [doors and stools] gaining preference over wooden furniture.

d) The origin of cardboard and the various stages of changes and growth.

e) Brown paper bags packing to recycled paper bags to plastic bags and cloth bags.

f) Re use of packaging [bottles, jars and tins] to attract customers for their products.

g) The concept of pyramid packaging for milk.

h) Cost being borne by the consumer/manufacturer.

i) Packaging used as means of advertisements.

2. The reasons behind changes in the following:

Coca – Cola and Fanta in the seventies to Thums up and Campa Cola in the eighties to Pepsi and Coke in nineties.

The teacher may guide the students to the times when India sold Coca Cola and Fanta were being manufactured in India by the foreign companies.

The students may be asked to enquire about

a. Reasons of stopping the manufacturing of the above mentioned drinks in India THEN.

b. The introduction of Thums up and Campa cola range.

c. Re entry of Coke and introduction of Pepsi in the Indian market.

d. Factors responsible for the change.

e. Other linkages with the above.

f. Leading brands and the company having the highest market share.

g. Different local brands venturing in the Indian market.

h. The rating of the above brands in the market.

i. The survival and reasons of failure in competition with the international brands.

j. Other observations made by the students

3. Changing role of the women in the past 25 years relating to joint families, nuclear families, women and bread earner of the family, changes in the requirement trend of mixers, washing machines, microwave and standard of living.

4. The changes in the pattern of import and export of different Products.

5. The trend in the changing interest rates and their effect on savings.

6. A study on child labour laws, its implementation and consequences.

7. The state of 'anti plastic campaign,' the law, its effects and implementation.

8. The laws of mining /setting up of industries, rules and regulations, licences required for running business.

9. Social factors affecting acceptance and rejection of an identified product. (Dish washer, Atta maker, etc)

10. What has the effect been on the types of goods and services? The students can take examples Like :Washing machines, micro waves, mixers and grinder.

a. Need for crèche, day care centre for young and old.

b. Ready to eat food, eating food outside, and tiffin centres.

11. Change in the man-machine ratio with technological advances resulting in change of cost structure   .
12. Effect of changes in technological environment on the behaviour of employee.

Project C :- STOCK EXCHANGE

Project D: PRINCIPLES OF MANAGEMENT : The students are required to visit any one of thefollowing:

1. A departmental store.
2. An Industrial unit.
3. A fast food outlet.
4. Any other organisation approved by the teacher.

They are required to observe the application of the general Principles of management advocated by Fayol. Fayol's principles are:

1. Division of work
2. Unity of command.
3. Unity of direction.
4. Scalar chain
5. Espirit de corps
6. Fair remuneration to all
7. Order
8. Equity
9. Discipline
10. Subordination of individual interest to general interest.
11. Initiative.
12. Centralisation and decentralisation.
13. Stability of tenure.
    OR
They may enquire into the application of scientific management techniques by F.W. Taylorin the unit visited.
Scientific techniques of management.
1. Functional foremanship. 2. Standardization and simplification of work. 3. Method study. 4. Motion Study. 5. Time Study. 6. Fatigue Study 7. Differential piece rate plan.

(B.) PRESENTATION AND SUBMISSION OF PROJECT REPORT OF PROJECT A ,B AND C
The following essentials are required to be fulfilled for its preparation and submission.
1. The total length of the project will be of 25 to 30 pages.

2. The project should be handwritten.
3. The project should be presented in a neat folder.
4. The project report should be developed in the following sequence-

   a) The cover page should include the title of the Project, student information, school year.
   b) List of contents.
   c) Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped).
   d) Introduction.
   e) Topic with suitable heading.
   f) Planning and activities done during the project, if any.
   g) Observations and findings of the visit.
   h) Conclusions (summarised suggestions or findings, future scope of study).
   i) Photographs (if any).
   j) Appendix.
   k) Teacher's observation.
   l) Signature of the teacher.

Instructions:
   1. The work has to be done on A4 size interleaf sheets.
   2. It should be written in neat handwriting.
   3. The file should not be spiraled.
   4. The project should be hand written and no print-outs to be used for content writing.

ACCOUNTANCY

1. Do the given assignments in your school register.

2. Prepare the following Sheets for the project work

   o Acknowledgement
   o Certificate
   o Title Sheet
   o Introduction of the Company

   Bring the Balance Sheet of Company selected for further project.

ECONOMICS

QUESTIONS:
   1. "The GDP is not the best index of welfare". Comment upon it.
   2. What is the difference between real GDP and nominal GDP?
   3. What is barter system? What are its limitations?
   4. What is high powered money?
   5. What is money supply? What are its components?

1. National Income from Ques. 31 to last.

PROJECT:

1. For Commerce Students: An Introduction to Derivatives (Forwards, Futures and Options). Choose any one kind of Contract.
2. For Humanities Students: How the breakdown of USSR impacted the Indian Economy?

PSYCHOLOGY

1. Prepare 'case profile' on any psychological Disorder/ Intellectual Giftedness/Intellectual Deficiency/Behavioural Issue. (Refer : Psychology: NCERT)
2. Complete Given Assignment (Ch-1and3)

PHYSICAL EDUCATION

1) Labelled diagram of field of any one Of Sport/Game of your choice.
2) Practical 1- Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle and Disease.
3) Make a Short video while performing Suryanamaskar (30sec Max)

BIOLOGY

1. Complete the investigatory project.
2. Do the given assignments and revise the syllabus completed so far.

Assignment -1
HUMAN REPRODUCTION

Q.1 What is the function of scrotum? (1)

Q.2 What are the functions of male germ cells, sertoli cells and leydig cells?(1)

Q.3 What is the function of epididymis?   (1)

Q.4 Name the three male accessory glands and their functions.(3)

Q.5 Where does fertilisation take place in humans?(1)

Q.6 Write the functions of fimbriae, endometrium and myometrium.(3)

Q.7 Define spermiogenesis and spermiation.(2)

Q.8 What is the role of FSH and LH in spermatogenesis?(2)

Q.9 Differentiate between spermatogenesis and oogenesis.(2)

Q.10 Schematically represent spermatogenesis and oogenesis.(3)

Q.11 Draw a well labelled diagram of human sperm. Also mention the function

of each part.(3).

Q.12 What is the identifying feature of a tertiary follicle?(1)

Q.13 At which stage is primary oocyte and secondary oocyte temporarily arrested?(1)

Q.14 What is a graafian follicle?(1)

Q.15 Explain the different phases of menstrual cycle and it's hormonal regulation.(5)

Q.16 When does a secondary oocyte complete it's second meiotic division?(1)

Q 17 What is implantation? Explain the key events after fertilisation up to implantation.(3)

Q.18 What is the identifying feature of a blastocyst?(1)

Q.19 What is placenta? How does it acts as an endocrine tissue?(3)

Q 20 What are the various features of embryonic development at various months of

pregnancy?(3)

Q 21 What is the function of oxytocin and relaxin?(2)

Q 22 Define parturition and lactation.(2)

Q.23 How is parturition achieved in human females?(3)

Q 24 What is coloustrum? Why is breast feeding advised in initial periods

of infant growth?(3)

PHYSICS

➢ Prepare Investigatory Project on the desired topic as per CBSE guidelines.
➢ Solve the given assignment in your register.

ELECTROSTATICS (1 – A) ASSIGNMENT

COULOMB'S LAW :

Q.1: Name the balance used by Coulomb's to measure the force between two charged metallic spheres.

Q.2: Give the value of electric permittivity of free space along with its units.

Q.3: State Coulomb's law of force in electrostatics.

Q.4: Two charged spherical conductors , each of radius R , are distant 'd ' (d > 2R). They carry charges + q and -q. Will the force of attraction between them be exactly $q^2/ 4\Pi\varepsilon_o d^2$?

Q.5: Two charges q1 and q2 by a small distance satisfy the equation q1 + q2 = 0. What does it tell us about the charges ?

Q.6: Calculate force between two charges of 1C each separated by 1m in vacuum.

Q.7: How is force between two charges affected when each charge is doubled and distance between them is also doubled ?

Q.8: In a medium , the force of attraction between two point electric charges , distance 'd' apart is 'F'. What distance apart should these be kept in the same medium so that the force between them becomes : (i) 3F (ii) 9F (iii) F/3 (iv) F/4 (v) F/5 ?

Q.9: Two point charges q1 and q2 are such that q1 q2 < 0. What is the nature of the force between the two charges ?

Q.10: Two point charges q1 and 2 q are such that q1 2 q > 0. What is the nature of the force between the two charges ?

Q.11: Plot a graph showing the variation of coulomb force (F) versus $(1/r^2)$, where 'r' is the distance between the two charges of each pair of charges (1 μC , 2 μC) and (2 μC , - 3 μC). Interpret the graphs obtained.

Q.12: Calculate the Coulomb's force between two α - particles separated by a distance 3. 2×10^{-15} m in air.

*** Charge on α - particle = 2 e = $2 \times 1.6 \times 10^{-19}$ C

Q.13: Calculate the force of electrostatic attraction between a proton and an electron separated by a distance of 8×10^{-14} m.

Q.14: What is the force between two small charged spheres having charges of 2×10^{-7} C and 3×10^{-7} C placed 30 cm apart in air.

Q.15: Calculate the distance between two protons such that the electrical repulsive force between them is equal to the weight of either. [Take mp = 1. 67×10^{-27} Kg and charge on proton q_p = 1. 6×10^{-19} C and g = 9. 8 m/s^2]

Q.16: Two equally charged identical metal spheres repel each other with a force of 2 . 0×10^{-5} N. Another identical uncharged sphere C is touched to A and then placed at the mid – point between A and B. What is the net force on C ?

Q.17: Two point charges 2 μC and 6μC repel each other with a force of 12 N. If each is given an additional charge - 4μC , what will be the new force between them ?

Q.18: Five point charges , each of value of 'q' are placed on 5 vertices of a regular hexagon of side λ . Find the magnitude of the force on a point of value –q placed at the centre of the hexagon.

Q.19: Two fixed point charges +4e and +e are separated by a distance 'd'. Where should the third charge be placed for it to be in equilibrium.

Q.20: Three point charges of +2 μC , - 3 μC and - 3 μC are kept at the vertices A , B and C respectively of an equilateral triangle of side 20 cm as shown in figure. What should be the sign and magnitude of the charge to be placed at the mid – point (M) of side BC so that the charge remains in equilibrium ?

POLITICAL SCIENCE

STUDENT's NAME	Topics
Anjali Maggo	Party System
Bhumi Mittal	Democratic Resurgence
Bhumika Arora	Globalisation
Harsh Jalwa	BRICS
Harshita	NDA-III and IV

Kajol Pandey	NITI Aayog
Kapish Rathi	Security in Contemporary World
Mayank Madaan	European Union
Rohan Khurana	India's Foreign Policy
Sahil Kumar	Challenges to Nation Building
Sakshi Saxena	Indian Politics-Recent Trends in Development
Vartika Rana	India-US Relations
Vibhuti Gera	United Nations and Its Organisation

INSTRUCTIONS:-

Format:-

1. Topic name and made by (Roll no. and name)
2. Acknowledgement
3. Certificate
4. Introduction
5. Background Knowledge (2-3 pages)
6. Main Information
7. Conclusion
8. Bibliography

Note- The project should be made in a spiral file covered with a sheet and submitted in the first week of July.

Also revise the syllabus covered so far.

CHEMISTRY

Prepare the investigatory project file for practical exam on the selected topic as per the CBSE guidelines and the format provided

(Haloalkane and Haloarenes)

(1 mark questions)

Q1. Why fluorination of hydrocarbons with F2 gas occurs explosively?

Q2. Write the major product of the reaction: $CH_3Br + AgCN$ …………….

Q3. Give 2 uses of Freon.

Q4. Give the name of the reaction, in which only haloarenes are treated with sodium, forming diaryls

Q5. Why the boiling points of chlorides, bromides and iodides are considerably higher than those of the hydrocarbons of comparable molecular mass?

Q6. What is Kharasch effect or peroxide effect? Give 1 test for detection of unsaturation (double or triple bond) in an organic molecule.

(2 marks questions)

Q7. Explain Finkelstein reaction.

Q8. Bromoalkanes can be easily prepared by refluxing the silver salts of a fatty acid. Name and explain the reaction.

Q9. Explain the stability of the haloalkanes having the same alkyl group.

Q10. In the formation of alkenes, dehydrohalogenation is classified as β-elimination reaction.

Q11. According to Saytzeff's rule, show saytzeff's elimination in case of haloalkanes.

Q12. Explain the reactivity of alkyl halides towards SN1 reactions. (3 marks questions)

Q13. How haloarenes are prepared from diazonium salts. Explain, by giving names of the reactions.

Q14. For isomeric alkyl halides, the boiling points decrease with branching. Explain.

Q15. Give the uses and environmental effects of Freon/DDT/Iodoform.

COMPUTER SCIENCE

1. Write a Python program to sum all the items in a list.
2. Write a Python program to get the largest number from a list.
3. Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are same from a given list of strings.
   Sample List : ['abc', 'xyz', 'aba', '1221']
4. Write a Python program to remove duplicates from a list.
5. Write a Python program to generate and print a list of first and last 5 elements where the values are square of numbers between 1 and 30 (both included).

6. Write a Python program to count the number of characters (character frequency) in a string.
   Sample String : google.com'
   Expected Result : {'o': 3, 'g': 2, '.': 1, 'e': 1, 'l': 1, 'm': 1, 'c': 1}
7. Write a Python program to get a string from a given string where all occurrences of its first char have been changed to '$', except the first char itself.
   Sample String : 'restart'
   Expected Result : 'resta$t'
8. Write a method in python to display the elements of a list twice if it is a number and display the element terminated with '*' if it is not a number.
9. Write a user defined function findname(name) where name is an argument in python to delete phone number from a dictionary phonebook on the basis of the name ,where name is the key.
10. Write a program to input employee number and name for N employees and display all employees' information in ascending order of their employee number.

11. Write an interactive menu driven program with the following four functions:
    (a) To create a text file called "Nation.txt"
    (b) Display the file
    (c) Append relevant content to the file
    (d) Make a copy of the file
    (e) Count the total number of "the" in the file

12. A blood bank maintains data file "Blood.dat" that contains following information for every donor: donor name, donor date of birth, donor address, donor phone number and donor blood group. Write a complete program to do the following:
    a) Create a file of the donor

b) Append a record in the file
c) Display the records
d) Given the blood group display name, address of the donor
e) Modify the existing information of the donor