



The Punjab Public School Nabha
Holiday Home Work
June-July, 2024
Class XII (A, B & C)

ENGLISH

Prepare a Project File in Language on any one (1) of the following topics: (500 words)

1. The text of a brochure
2. A product description
3. A process description (e.g. instruction to operate a device, a recipe, a scientific experiment)
4. Description of a sporting event
5. An autographical experience
6. Review of a television serial

Prepare a Project File in Literature on any one of the following topics: (1000-1500 words)

1. Analysis of a theme from any short story/poem in the prescribed texts.
2. Analysis of a character from the drama or any short story/poem in the prescribed texts.
3. Background—historical, cultural, literary context and relevance of the writer/poet chosen.
4. Summary/paraphrase of the chosen text.
5. Appreciation of literary qualities of the chosen text.
6. Identifying with a character in the chosen text and presenting his/her personal perspective.
7. Imagining an alternative outcome or ending or extension of the chosen text and its impact on the plot/setting/characters/mood and tone.
8. A script for dramatization, based on the short story/poem chosen.
9. Writing a short story based on the poem.
10. Comparing and contrasting two characters/themes from different short stories/poems of the prescribed texts.

Note:

1. Please maintain 2 separate files for Language and Literature.
2. Show proper Cover Page, Index, Acknowledgement and Bibliography (source may include books, research papers and online resources).
3. Please choose the text from the following:

Drama

Macbeth by William Shakespeare (Act 3, 4 & 5)

Poems

1. Telephone Conversation by Wole Soyinka
2. Tithonus by Alfred, Lord Tennyson
3. Beethoven by Shane Koyczan

4. Small Towns and the River by Mamang Dai
5. Death Be Not Proud by John Donne

Stories

1. Atithi/Guest by Rabindranath Tagore
 2. The Cookie Lady by Philip K Dick
 3. There Will Come Soft Rains by Ray Bradbury
 4. Indigo by Satyajit Ray
 5. The Medicine Bag by Virginia Driving Hawk Sneve
4. Please solve **English Language** and **English Literature** papers of **Unit Examination** in your Notebook.

Psychology

Students are expected to conduct a study and make a detailed project on any one of the following topics:

1. **Stress (Nature, Causes of Stress, Effects of Stress on health and performance) and Stress Management**
OR
2. **Attitudes (Meaning, components, formation of attitudes, how attitudes change) and Prejudice and Discrimination**

History

The students will make project on the following topic:

1. Leaders e.g., Malcolm X, Rosa Parks, Noor Inayat Khan, Surya Sen, Vinoba Bhave, Sun Yat Sen, Golda Meir, Sirimavo Bandaranaike, Margaret Thatcher, etc.
2. Radical organisations ideologies, acts and impact. E.g., KKK, Al Qaeda, Boko Haram, Al- Shabaab, Sendero Luminoso, Khmer Rouge, Japanese Red Army, etc.
3. Protests Movements political ideologies, civil rights, workers, caste, environment. E.g., Arab Spring. Chipko Movement, Black Lives Matter, Dalit Panther Movement, etc.
4. UN-Peacekeeping actions and Weaknesses.
5. Regional Organizations and their contributions- E.g., SAARC, ASEAN, EU, AU, etc.
6. Growth of feminist movements in India /the West.
7. Music/art as a medium of protest.
8. Books that have had a profound effect on society.

The written outcome of the project in the form of 800 to 1500 word essay should be structured as given below :

1. Introduction ---- Background and context to be discussed very briefly
2. Main body ---- Explanation ,Interpretation Analysis and Critical Evaluation of a range of evidence : the research material gathered by the student
3. Conclusion ----- Brief summing up of the topic
4. Bibliography ----- a list of all material referred to in the essay including print, electronic oral and audio - visual material, referenced correctly in a standard format
5. Appendix ----- optional only if it is crucial for the better understanding of the project essay

HINDI

परियोजना कार्य- 2024

विषय: हिंदी

कक्षा: बारहवीं

- 1 'आषाढ़ का एक दिन' नाटक को ध्यान में रखते हुए कालिदास का चरित्र-चित्रण कीजिए।
असाधारण व्यक्तित्व का स्वामी, प्रकृति प्रेमी, पशु प्रेमी व उदार हृदय, असाधारण प्रतिभावान, महत्वाकांक्षी, असफल प्रेमी।
- 2 'मज़बूरी' कहानी दो माताओं के प्रेम की बेजोड़ कहानी है। दोनों की भावनाओं के अंतर को उदाहरण सहित स्पष्ट कीजिए।
- 3 'सारा आकाश' उपन्यास की नायिका प्रभा का चरित्र-चित्रण कीजिए।
गुणवान, पढ़ी-लिखी, सहनशील, पति का साथ देनेवाली, परिवार में सबका ध्यान रखने वाली, भाभी के कुचक्र का शिकार, मेहनती, चरित्रवान, भावुक, सुलझे विचारों वाली, पति की उन्नति में सहायक, संतोषी।
- 4 एक निबंध लिखिए- साहित्य समाज का दर्पण है।
भूमिका, साहित्य और समाज, साहित्य में समाज का प्रतिबिम्ब, भूत और वर्तमान का चित्रण, समाज का पथप्रदर्शक, संकट में मार्गदर्शक, साहित्य समाज व व्यक्ति का निर्माता, रामायण, महाभारत आदि साहित्य द्वारा सामाजिक उत्थान में योगदान, सही राह की ओर प्रेरित करना, साहित्य व समाज का अटूट सम्बन्ध, उपसंहार।

नोट:- परियोजना कार्य जांच के मापदंड

- कार्य स्वच्छ, त्रुटिरहित एवं स्वयं से किया गया हो।
- कार्य की जांच अभिव्यक्ति, सरल भाषा, व्याकरण की विभिन्न विधाओं के प्रयोग, विचारात्मक भाव को ध्यान में रख कर किया जाएगा।
- परियोजना कार्य जमा करने की अंतिम तिथि 02 अगस्त 2024 है।

PUNJABI

ਨੋਟ :-ਲਿਖਾਈ ਸਾਫ਼ ਅਤੇ ਸੁੰਦਰ ਕਰੋ।

1. ਵਿਦਿਆਰਥੀ ਨਾਟਕ 'ਕੱਲ ਅੱਜ 'ਤੇ ਭਲਕ' ਦੇ ਲੇਖਕ 'ਡਾ. ਹਰਚਰਨ ਸਿੰਘ' ਜੀ ਦੇ ਜੀਵਨ ਅਤੇ ਸਾਹਿਤਕ ਸਫਰ ਬਾਰੇ ਜਾਣਕਾਰੀ ਇਕੱਠੀ ਕਰਕੇ ਇੱਕ ਪ੍ਰੋਜੈਕਟ ਤਿਆਰ ਕਰਨਗੇ।
(ਲੇਖਕ ਦਾ ਜੀਵਨ, ਸਾਹਿਤ ਰਚਨਾ, ਕਿੱਤਾ ਅਤੇ ਮਾਨ ਸਨਮਾਨ।)
2. ਕਹਾਣੀ 'ਇੱਕਵੀਂ ਸਦੀ' ਅਤੇ ਉਸਦੇ ਲੇਖਕ ਬਾਰੇ ਜਾਣਕਾਰੀ ਇਕੱਠੀ ਕਰਕੇ ਕਹਾਣੀ ਅਤੇ ਲੇਖਕ ਉੱਪਰ ਚਿੱਤਰਾਂ ਸਹਿਤ ਇੱਕ ਪ੍ਰੋਜੈਕਟ ਤਿਆਰ ਕੀਤਾ ਜਾਵੇ।
2. ਨਾਟਕ 'ਮੜ੍ਹੀ ਦਾ ਦੀਵਾ' ਬਾਰੇ ਜਾਣਕਾਰੀ (ਨਾਵਲ ਦੀ ਰਚਨਾ, ਪਾਤਰ ਤੇ ਸੰਖੇਪ ਵਿਸ਼ਾ) ਇਕੱਠੀ ਕਰਕੇ ਲਗਭਗ 500 ਸ਼ਬਦਾਂ ਵਿੱਚ ਲਿਖੋ।
4. 'ਅੱਜ ਦੇ ਵਿਦਿਆਰਥੀ ਦਾ ਰਾਸ਼ਟਰ ਨਿਰਮਾਣ ਵਿੱਚ ਯੋਗਦਾਨ' ਵਿਸ਼ੇ ਉੱਤੇ ਲੇਖ ਲਿਖੋ।
5. ਵਿਦਿਆਰਥੀ (UNIT TEST) ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਨੂੰ ਲਿਖਤੀ ਰੂਪ ਵਿੱਚ ਹੱਲ ਕਰਨਗੇ।

ਵਿਦਿਆਰਥੀ ਉਪਰੋਕਤ ਦਿੱਤੇ ਕੰਮ ਨੂੰ ਸੁਚੱਜੇ ਰੂਪ ਵਿੱਚ ਇੱਕ ਫਾਇਲ ਵਿੱਚ ਲਿਖਤੀ ਰੂਪ ਵਿੱਚ ਤਿਆਰ ਕਰਨਗੇ। ਪ੍ਰੋਜੈਕਟ ਤਿਆਰ ਕਰਦੇ ਹੋਏ ਵਿਦਿਆਰਥੀ ਪਾਠ ਸੂਚੀ, ਪ੍ਰਵਾਨਗੀ, ਜਾਣ ਪਛਾਣ ਅਤੇ ਕਿਤਾਬ ਸੂਚੀ ਦਾ ਵਿਸ਼ੇਸ਼ ਧਿਆਨ ਰੱਖਣ।

FINE ARTS

STILL LIFE

1. You have to draw **Four** Still Lives. You can choose any corner of your House, outside or adjust anything. (Like-jug, glass, bottle, cup, pot, jam bottle basket, plate of fruits, flowers, vegetables etc.) You have to draw **Two** with water colors and **Two** with shading / oil pastel / acrylic colours.

NOTE: - you have to solve two papers of the last two year exams also. & you have to concentrate on structure from, tone, perspective, shading and related to background.

NATURE STUDY

2. You have to draw **Four** works from Nature – any **One** tree from nature related to a natural background – any **Two** beautiful plants with flowers, a bud or two, and **One** make a study of fruits or vegetables into two parts.

NOTE: - you have to draw detail study of nature and concentrate on form, Structure, tone, perspective.

TIE AND DYE

3. You have to dye four pieces of cloth in different type's patterns.

NOTE: - students are requested to complete their project, file sheets in the proper order and sheets should be properly on file or used as a drawing file.

COMMERCE

Project Works:

Project 1 : Formulate a capital plan for a hypothetical business organization. Justify your formulated plan.

Project 2: Choose two companies of the same Industry. Study their organizational Structure. Also give information with regard to:

- (a) Hierarchy
- (b) Centralization and delegation of authority
- (c) Flow of information (Scalar chain)
- (d) Channel of communication
- (e) Make a SWOT Analysis and present it in a tabular form.

Complete the following questions in your Commerce Notebook

Note: All questions have been extracted from the ISC Commerce Paper 2024. The questions are from part of the syllabus that has been completed till May 31, 2024

Section A (1 Mark per question)

- 1) A Debenture issued by a company by creating a fixed or a floating charge on the company's assets is known as:
 - a) Non-convertible Debenture
 - b) Mortgage Debenture
 - c) Redeemable Debenture
 - d) Unsecured Debenture
- 2) A business firm should have extra funds to meet future emergencies. Identify the type of Working capital indicated here:
 - a) Special
 - b) Seasonal
 - c) Initial
 - d) Regular
- 3) An Awareness of business environment enables an enterprise to take advantage of early opportunities instead of losing them to competitors.
Which benefit of understanding the business environment is highlighted in the above statement?
 - a) Customer Force
 - b) Early Warning Signal
 - c) First Mover Advantage
 - d) Public Image.

- 4) State whether the following is True or False
a) Recession is an inherent constraint in almost all manufacturing organizations.
- 5) Organization and development of financial market has created a surge in primary and secondary capital market. Which dimension of Macro environment is referred to in this statement?

Section B

1. JSW Co. purchased goods on credit from SDW Co. and paid the amount after two months. Name the short term source of finance used by the buyer and state any three features of this source.
(4)
2. The capital structure of XYZ Ltd. Is highly geared. Explain any four factors that were considered by its Finance Manager while formulating such a capital structure for the company.
(4)

Section C

- (1) Explain any five external factors of Micro environment that influence a business organization.
(5)
- (2) State any three components of social environment. (3)

Q. Ms.Rubina , a first time investor, does not understand the difference between securities with voting rights and securities without voting rights. Give any five differences between the two types of securities to help her understand the difference

- (5)
Expand UPI and briefly discuss its meaning. (3)

OR

Rajiv's daughter has secured a seat in a Law College. The college has asked for the payment of admission fee through the financial instrument payable on demand. Identify and explain the financial instrument indicated above. Can it be issued Online? List any two of its features. (5)

Write a short note on Sweat Equity Shares. (3)

MATHEMATICS

- Instructions:** 1. All the projects to be done on a separate file.
2. The front page should carry your details e.g. Name, House Number, Class & Section, name of the teacher, session etc.
3. Your project should include: an introduction, findings, analysis, conclusion, acknowledgement and bibliography.
4. Do any two projects

1. Verify the consistency of the system of three linear equations in three variables and verify the same graphically. Give its geometrical interpretation.
2. Explain the concepts of increasing and decreasing functions, using geometrical significance of $\frac{dy}{dx}$. Illustrate with proper examples.
3. Explain the conditional probability, the theorem of total probability and the concept of Bayes' Theorem with suitable examples

Biology

1. Make a project of any one specific topic given topic.

(i) Genetic disorders

(ii) Gene therapy

(iii) Human Genome Project

(iv) DNA fingerprinting

(v) Bio-piracy

(vi) Cancer.

(vii) AIDS/Hepatitis.

(viii) Drug addiction and community.

(ix) Role of micro-organisms in industry.

(x) Human population.

(xi) Mendelian Inheritance

(xii) Environmental resistance.

(xiii) Traditional and modern methods: Study of a few traditional methods of pest deterrence vis-a-vis modern methods of pest control - viability of traditional methods in today's scenario and limitations and dangers of modern methods.

(xiv) Role of agrochemicals in increasing food production.

Evaluation criteria for Project works:

Format for writing project file:

(a) Certificate

(b) Acknowledgement

(c) Name of project

(d) Introduction

(e) Theory/ Principle

(f) Observation/Result

(g) Conclusion

(h) Bibliography

Note: Observation/ Result includes graph, tables, charts, newspaper, diagram, Photograph, Statistical analysis if any

(2) After completion of project each child has to present his or her PPT. Child will assess on the basis of

(a) Content of the topic

(b) Communication & Delivery

- (c) Presentation
- (d) Evidence
- (e) Relevancy

3. Make a PPT on the effects of Following on human body:

- (i) Cannabis
- (ii) Cocaine
- (iii) LSD

PHYSICS

Revise the first 7 chapters of the textbook.

- Do all the numericals in a separate notebook.
 - Learn and write all the formulae from the chapters taught.
 - Practice the diagram-related questions.
 - Solve Unit test paper in the classwork notebook.
 - Complete the Practical file. Write down the practicals in your practical notebook.
 - Complete the Project work
1. Study of the Impact of Space-Time Curvature. – R.No. 1 & 3
 2. To Study the Magnetic Properties of Materials. – R.No. 2 & 4
 3. To research dielectric materials for cutting-edge applications. – R.No. 5 & 7
 4. To study the death of a star and the formation of a black hole. – R.No. 6 & 8
 5. The Future of Electricity: A Study of Wireless Energy. – R.No. 9 & 11
 6. A full-wave bridge rectifier and its uses. – R.No. 10 & 12
 7. To Illustrate the operation of an Electrolytic Capacitor with the aid of an audio oscillator. – R.No. 13 & 15
 8. **Thermoelectric Generator Working Model. Thermoelectric effect.** – R.No. 14 & 16
 9. **Touch sensor; Principle, working and its application.** – R.No. 17 & 19
 10. **Study of Maser and its applications.** – R.No. 18 & 20
 11. Study of Laser and its applications. – R.No. 21 & 23
 12. Anti-particles; their existence and significance. – R.No. 22 & 24
 13. Study of the Solar cycle and its effect on Earth's atmosphere. – R.No. 25 & 27
 14. The study about communication satellites. – R.No. 26 & 28
 15. Particle accelerators and their applications in various fields. – R.No. 29 & 30

The content of the project must contain the following:

1.	Title and Abstract (summary)
2.	Acknowledgment
3.	Introduction/purpose

4.	Contents/Presentation
5.	Analysis/ material aid (graph, data, structure, pie charts, histograms, diagrams, etc.)
6.	Originality of work
7.	Conclusion/comments

CHEMISTRY

*Learn and practice the following Name reactions--

1. Friedel-Craft alkylation
2. Friedel-Craft acylation
3. Wurtz reaction
4. Swartz reaction
5. Finkelstein reaction
6. Hundsdiecker reaction
7. Sandmeyer reaction
8. Gattermann reaction
9. Balz-Schiemann reaction
10. Williamson synthesis
11. Reimer-Tiemann reaction
12. Fittig reaction
13. Wurtz -Fittig reaction
14. Kobe's reaction
15. Diazotization reaction
16. Coupling reaction
17. Decarboxylation reaction
18. Haloform reaction
19. Carbyamine reaction
20. Riemer Riemann reaction

*Do following conversions:

1. n-Propyl chloride to n-Propylamine
2. Methyl bromide to ethyl bromide
3. Chlorobenzene to toluene
4. Benzene to diphenyl
5. Ethyl bromide to ethyl benzene
6. Chlorobenzene to aniline
7. Propene to 1-Bromopropane
8. Aniline to chlorobenzene

9. Methyl bromide to acetic acid
10. Chloroform to acetylene
11. Iodoform to formic acid
12. Chloroform to salicylaldehyde
13. Aniline to phenyl isocyanide
14. Silver acetate to methyl bromide
15. Ethyl chloride to diethyl amine

*Solve board questions of

1. Haloalkanes and Haloarenes.
2. Alcohols, phenols and ethers.
3. Solution

Prepare Project file on any of following topics.

1. Aminoacids: Peptides, structure and classification, proteins structure and their role in the growth of living beings. **(J00329), (R2604)**
2. Nucleic Acid: DNA and RNA – their structure. Unique nature. Importance in evolution and their characteristic features. **(J00632), (J00639)**
3. Lipids: structure, membranes and their functions. **(J2724), (B00527)**
4. Carbohydrates and their metabolism, Haemoglobin-blood and respiration. **(R00459), (S00442)**
5. Immune systems. **(R00499), (B00521)**
6. Vitamins and hormones **(J00389), (S00462)**
7. Simple idea of chemical evolution. **(J00580), (Sk2619)**
8. Natural polymers (any five)- structure, characteristics, uses. **(B00426), (R2595)**
9. Synthetic polymers (any five)- method of preparation, structure, characteristics and uses. **(R2592), (R00460)**
10. Thermoplastics and Thermosetting plastics - methods of preparation, characteristics and uses. **(J00570), (R00490)**
11. Types of dyes- methods of preparation, characteristics and uses. **(R00288)**
12. Chemicals in medicines: antiseptics, antibiotics, antacids, etc. and their uses – chemical names. **(S00555)**
13. Various rocket propellants and their characteristics. **(J00324)**
14. Preparation of soap, alcohol, nail polish, boot polish, varnish, nail polish remover, shampoo and scents. **(S00261)**
15. Chemical and chemical processes in forensic studies. **(B2667)**
16. Air pollution, water pollution. **(S00379)**
17. Insecticides, pesticides and chemical fertilisers. **(B00429)**

18. Coal and coal tar as a source of many chemicals.(S00459)
19. Ancient Indian medicines and medicinal plants.(S00415)
20. Explosives - preparations and their uses.(R00338)

ACCOUNTS

During the summer vacations, students are required to complete the following Project ASSIGNMENTS:

ASSIGNMENT 1:

Complete the Commercial Accounts Unit Exam question paper. (in your class notebooks)

ASSIGNMENT 2:

Prepare Balance Sheet of M/s Khaitan Ltd. As per Schedule III, Part I of the Companies Act, 2013: The company is authorised with a capital of Rs. 1,50,000 shares or Rs. 10 each. The company offered 1,00,000 shares of Rs. 10 each at a premium of Re. 1. All shares were subscribed for and allotted. Till 31st March, 2024, the whole amount was called and paid, except one shareholder who was holding 1,000 shares, on which he did not pay final call of Rs. 3 per share. His shares were forfeited and subsequently 800 shares were reissued for Rs. 8 per share fully paid. (use separate project or practical sheets, make appropriate format and highlight the main components of Balance Sheet & Notes to accounts)

ASSIGNMENT 4:

Write short notes on Minimum Subscription (Sec. 39), Issue of shares at premium and application or use of securities premium Sec. 52., (use separate project or practical sheets)

ASSIGNMENT 3:

Complete the project activity assigned to you individually

- Use project or practical sheets attached in a file cover.
- The project activity should be attempted on minimum 12 to 15 pages.
- On first page show the Name and class of the student, second page Title of the project, and on third page index of the dates and activity. These three pages are other than the abovementioned 12-15 pages.
- Follow the fundamental rules while drawing the formats of Journal entries , Ledger and Balance Sheet.
- Use Black ink pen for writing (no Ball pen), Pencil, Sketch colours in your work.
- *The project activity should be your original work and not copied from any classmate or plagiarized from other source.*

**Final version of the project assignment file required to be submitted to the subject teacher on
August 2nd, 2024**

Continued...

SN	H. NO	NAME	CAT.	Project Title
1	S00417	Abhaypartap Singh		<i>Calls in advance, Arrears, Interest</i>
2	J2726	Adeshpartap Singh Sachdeva		<i>Issue of Shares consideration other than cash (Vendors)</i>
3	J00390	Amninder Singh		<i>Issue of Shares consideration other than cash (Underwriters)</i>
4	S00445	Angadpreet Singh		<i>Issue of Shares consideration other than cash (Promoters)</i>
5	J00328	Avreet Kaur Pannu	BG	<i>Oversubscription and pro-rata allotment</i>
6	B00495	Bhavya Jain		<i>Interest on debentures</i>
7	J00479	Fatehjit Singh Chahal		<i>Issue of debentures as collateral security</i>
8	B00428	Gunnaz Kaur	BG	<i>Forfeiture of shares originally issued at premium</i>
9	J00530	Gurkaran Singh		<i>Reissue of forfeited shares and capital reserve</i>
10	J00644	Gurmanpreet Kaur	BG	<i>Types of share capital</i>
11	J00581	Harjasdeep Singh Ahluwalia		<i>Redemption of debentures</i>
12	R2598	Harpreet Kaur	BG	<i>Issue of shares at premium and calls in arrears, Interest</i>
13	R00492	Jasmeen Khosa	BG	<i>Issue of shares and preparation of cash book</i>
14	J00409	Keshav Bhadoo		<i>Forfeiture of shares originally issued at par</i>
15	B00363	Khushnaseeb Singh		<i>Issue of debentures at premium and Balance Sheet extract</i>
16	S00381	Khushpreet Bawa	BG	<i>Issue of Shares consideration other than cash (Promoters, Underwriters)</i>
17	R00291	Mankirat Kaur Dhaliwal	BG	<i>Loss on issue of debentures (Discount and premium on redemption)</i>
18	S00510	Manveer Kaur	BG	<i>Redemption of debentures</i>
19	S00523	Mehtaab Singh Brar		<i>Issue of Shares consideration other than cash (Promoters, Underwriters)</i>
20	J00582	Parteekjot Singh		<i>Issue of debentures as collateral security</i>
21	J00656	Pratham Arora		<i>Issue of shares at premium and calls in arrears, Interest</i>
22	R00289	Pulkit		<i>Issue of shares at premium and calls in advance, Interest</i>

23	J00449	Ranjodh Singh		<i>Forfeiture of shares originally issued at premium</i>
24	S00548	Ravleen Kaur Dharni	BG	<i>Issue of Shares consideration other than cash (Vendors)</i>
25	B00589	Rishavpreet Kaur	BG	<i>Forfeiture of shares originally issued at par</i>
26	J00484	Sharandeep Dass		<i>Types of share captial</i>
27	J00464	Shehbaz Singh Sandhu		<i>Issue of Shares consideration other than cash (Promoters, Underwriters)</i>
28	J00641	Shubham Singla		<i>Types of share capital</i>
29	S00281	Suraj Kumar K.T.	SWB	<i>Types of share captial</i>
30	B00309	Teshmeen Kaur	BG	<i>Calls in advance, Arrears, Interest</i>

ECONOMICS

Project 1: Take the case of a nationalized bank. Visit any of its branch in your locality. Analyze the main functions of this branch. Make a project to this effect and present it in your class.

Project 2: Compare the contribution made by different sectors of the Indian economy towards GDP growth over a time period mainly emphasizing the recent trend.

COMPUTER SCIENCE

A. Boolean Algebra

(a) State the Boolean law represented by the following proposition and prove it with the help of a truth table: $P \cdot (P + Q) = P$

(b) Draw the truth table and logic diagram of two input NAND gate.

(c) Write the following cardinal expression into its corresponding canonical form :

$$F(x,y,z) = \prod(2,3,5,7)$$

(d) Find the dual of :

$$(X' + 1) \cdot (Y + 0) \cdot (X' + Y') = X' \cdot Y$$

(e) Find the compliment of the following Boolean expression using De Morgan's law:

$$F(p,q,r) = (p \cdot q)' + p' \cdot q \cdot r$$

(f) Draw the circuit diagram of NOR using NAND gates only.

(g) What do you mean by gray code? How is it different from ordinary binary code ?

(h) Given $F(A,B,C,D) = \sum (0,1,2,3,5,6,7,10,13,14,15)$.

(i) Reduce the above expression by using 4-variable Karnaugh map, showing the various groups (i.e. octal, quads and pairs).

(ii) Draw the logic gate diagram for the reduced expression. Assume that the variables and their complements are available as inputs.

(i) Given $F(A, B, C, D) = (A+B+C+D')(A+B+C'+D')(A+B+C+D)(A+B+C'+D)$.

$$(A+B'+C+D')(A+B'+C'+D')(A'+B+C+D)(A'+B+C'+D)$$

$$(A'+B'+C+D')(A'+B'+C'+D')(A'+B+C+D')(A'+B+C'+D')$$

(i) Reduce the above expression by using 4-variable Karnaugh map, showing the various groups (i.e. octal, quads and pairs).

(ii) Draw the logic gate diagram for the reduced expression. Assume that the variables and their complements are available as inputs.

(j) Given $F(A,B,C,D) = \sum (3,4,5,7,11,12,13,14,15)$

(i) Reduce the above expression by using 4-variable Karnaugh map, showing the various groups (i.e. octal, quads and pairs).

(ii) Draw the logic gate diagram for the reduced expression. Assume that the variables and their complements are available as inputs.

(k) Given $F(P,Q,R,S) = (P+Q'+R+S)(P'+Q'+R+S)(P+Q+R+S')(P+Q'+R+S')(P'+Q'+R+S')(P'+Q+R+S')(P+Q'+R'+S)(P'+Q'+R'+S)$

(i) Reduce the above expression by using 4-variable Karnaugh map, showing the various groups (i.e. octal, quads and pairs).

(ii) Draw the logic gate diagram for the reduced expression. Assume that the variables and their complements are available as inputs.

(l) Draw the logic circuit diagram of the following expression using **NOR** gates only:

$$F(p,q,r) = (p'+q+r).(p+q'+r).(p+q+r')$$

(m) Given, the Boolean Function, $F = p'.q + p.q + p.(p'+q')$. Reduce F using boolean laws.

(n) A full subtractor is a combinational circuit that performs the subtraction between two bits, taking into account that 1 may have been borrowed by a lower significant stage. Following is the truth – table for the full subtractor. It has three inputs : M, S and P. It has two outputs : B and D.

INPUT			OUTPUT	
Minuend(M)	Subtrahend(S)	Previous Borrow(P)	Borrow(B)	Difference(D)
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	1	0
1	0	0	0	1
1	0	1	0	0

1	1	0	0	0
1	1	1	1	1

Write the SOP expression for B and D. Use K-maps to reduce B and D if possible.

Now draw logic circuit diagram of the reduced expression using AND, OR and NOT gates. You can assume that the variables and their complements are available as inputs.

B. Practical / Project Work

1. A class Intersection contains an array of integers. Using the following class description create an array with common elements from two integer arrays. Some of the members of the class are given below:

Class name : Intersection
 Data members/
 Instance Variables
 arr[] : integer array
 len : length of the array
 Member functions
 Intersection () : default constructor
 Intersection (int) : parameterised constructor to assign the length of the array.
 void inarr() : to accept the array elements
 Intersection common(Intersection) : returns an Intersection containing the common elements of current Intersection object and the Intersection object passed as a parameter.
 void arrange() : sort the array elements in ascending order using any sorting technique
 void display() : display the array elements

Specify the class Intersection giving details of the constructor and member functions. Define the main() function to create an object and call the member function according to enable the task.

2. A new advanced Operating System, incorporating the latest hi-tech features has been designed. The task of generating copy protection code to prevent software piracy has been entrusted to the Security Department. The Security Department has decided to have codes containing a jumbled combination of alternate uppercase letters of the alphabet starting from A up to K (namely among A,C,E,G,I,K). The code may or may not be in consecutive series of alphabets. Each code should not exceed 6 characters and there should be no repetition of characters. If it exceeds 6 characters, display an appropriate error message. Some members of the class are given below:

Class name : Security
 Data members/instance variables :
 str : to store the code
 n : to store length of code
 Member functions/methods :
 Security(String x) : constructor to initialize str to x and n with its length
 boolean capital() : to return true if all characters in code are in Uppercase otherwise false
 boolean check() : to return true if characters in code are either A,C,E,G,I or K and appears only once otherwise false

void display() : to check and display whether code is valid or invalid and display appropriate message. The check should be stepwise and message should be appropriate.

Specify the class Security giving details of the constructor and member functions. Define the main() function to create an object and call the member function according to enable the task.

Sample Input : AcIK
Output: Invalid ! Only uppercase letters permitted !

Input : ACEIDSK
Output: Error ! Length of String should not exceed 6 characters !

Input: ACEB
Output: Invalid ! Either characters repeated or out of range !

Input: GEAIK
Output: Valid

3. A class Hifact has been defined to find the HCF of two numbers using the recursive technique. This HCF is used to find the LCM of the two numbers. Some members of the class are given below:

Class name : Hifact

Data members/ Instance Variables

a, b : to store the given two numbers.

Member functions

Hifact() : default constructor
void getdata() : to accept the values of a and b
void change() : to swap a and b if a>b
int rechcf(int, int) : to find hcf using the recursive technique
int fn_lcm() : to find lcm using a,b and hcf
void result() : to invoke rechcf(...) and fn_lcm(...) and print hcf and lcm of the two numbers a,b

Specify the class Hifact giving the details of the constructor(), void getdata(), void change(), int rechcf(...), int fn_lcm(...) and void result(). Write the main function and find the hcf and lcm of any two integers a and b.

4. Write a program to declare a square matrix A[][] of order (MXM) where 'M' is the number of rows and the number of columns. 'M' should be greater than 2 and less than 20. Allow user to enter integers into this matrix. Display appropriate error message for an invalid input. Perform the following tasks.

1. Display only the star elements
2. Display the sum of all the elements except the four corners.

Test Data:

Input: M=5

```
2 3 5 6 1
5 4 1 6 7
6 7 0 9 2
3 1 2 6 8
```


1 3 6 8 2

Output:

Original matrix

2 3 5 6 1

5 4 1 6 7

6 7 0 9 2

3 1 2 6 8

1 3 6 8 2

Star elements

2 3 5 6 1

4 1 6

0

1 2 6

1 3 6 8 2

Sum of all the elements except the four corner elements : 98

Input: M=22

Output: Size out of range

5. A sentence is called a Progressive sentence if length of each of its word is one more than the length of the previous word. Write a program to input a sentence and check whether it is a Progressive sentence or not.

Example 1:

Input : I AM NOT WELL.

Since length of first word is 1, second word is 2, third word is 3, and fourth word is 4, i.e. length of each word is one more than the length of the previous word. Hence, it is a Progressive statement.

Output: It is a Progressive sentence.

Example 2:

Input : IS SHE BUSY?

Since length of first word is 2, second word is 3, third word is 4, i.e. length of each word is one more than the length of previous word. Hence, it is a Progressive statement.

Output: It is a Progressive sentence.

Example 3:

Input : ARE YOU BUSY?

Since length of first word is 3, second word is 3, third word is 4, i.e. length of each word is NOT one more than the length of previous word. Hence, it is a NOT a Progressive statement.

Output: It is a not a Progressive sentence.

6. Design a program to accept a day number (between 1 and 366), year (in 4 digits) from the user to generate and display the corresponding date. Also, accept 'N' ($1 \leq N \leq 100$) from the user to compute and display the future date corresponding to 'N' days after the generated date. Display an error message if the value of the day number, year and N are not within the limit or not according to the condition specified.

Test your program with the following data and some random data:

Example 1

INPUT:
DAY NUMBER: 255
YEAR: 2018
DATE AFTER (N DAYS): 22
OUTPUT:
DATE: 12TH SEPTEMBER, 2018
DATE AFTER 22 DAYS: 4TH OCTOBER, 2018

Example 2

INPUT:
DAY NUMBER: 360
YEAR: 2018
DATE AFTER (N DAYS): 45
OUTPUT:
DATE: 26TH DECEMBER, 2018
DATE AFTER 45 DAYS: 9TH FEBRUARY, 2019

Example 3

INPUT:
DAY NUMBER: 500
YEAR: 2018
DATE AFTER (N DAYS): 33
OUTPUT:
DAY NUMBER OUT OF RANGE

Example 4

INPUT:
DAY NUMBER: 150
YEAR: 2018
DATE AFTER (N DAYS): 330
OUTPUT:
DATE AFTER (N DAYS) OUT OF RANGE

C. Solve the Unit Examination Paper in fair notebook.

Solve the Boolean algebra questions in fair notebook. Execute the programs on Blue J. Write the executed program in the practical files. Send the scanned Boolean algebra work (pdf) and executed programs along with output windows screenshot at abhisheksinghpps@gmail.com before 25/07/2024. Copied work will be marked 0. The marks of this assignment will be added in the internal assessment .

PHYSICAL EDUCATION

1. To prepare Practical file. Write down the rules of the games of HOCKEY and FOOTBALL with proper diagrams of the fields.(Books)
2. Write down the answers of the following questions which are given below:-
 - i) Draw a neat diagram of a football field with all specification.
 - ii) When is the ball in play and out of play?
 - iii) How to decide the winner if the final match of the tournaments draws?
 - iv) i) Write down the situation when a direct free is awarded ?
 - ii) When is a goal considered to be scored?
 - v) Explain the following terms :-
 - i) Banana shot
 - ii) Chip shot
 - vi) Draw a neat diagram of a hockey goal post, with all its dimensions.
 - vii) How many cards are used in hockey and their penalties and what is the duration of hockey match?
 - viii) Name the equipments required on a technical table.
 - ix) What is set formation and show the basic formation of hockey with diagram and explanation?
 - x) Explain the following:-
 - i) Bully
 - ii) Dangerous play

POLITICAL SCIENCE

1. Elections and Representation

Task 1:

Define the concept of elections and their significance in a democratic system.

Explain the different types of electoral systems used around the world.

Analyze the role of political parties in elections and their impact on representation.

Task 2:

Research the electoral process in your country.

Identify and describe the key electoral institutions involved, such as the Election Commission or Board.

Discuss any recent electoral reforms or changes in electoral laws.

2. Legislature

Task 1:

Define what a legislature is and its functions in a democratic system.

Compare and contrast unicameral and bicameral legislatures.

Discuss the powers and responsibilities of the legislature in law-making and oversight.

Task 2:

Research the structure and functioning of the legislature in your country.

Identify the key features of your country's parliament or congress.

Analyze the role of committees in the legislative process.

3. Assignment on: Elections of 2024

Task 1: Overview

Provide a brief overview of the Elections of 2024, including the countries involved and the electoral systems used.

Highlight any significant trends or patterns observed during these elections.

Task 2: Case Study

Select one country that held elections in 2024 and conduct an in-depth analysis.

Discuss the political context leading up to the elections, including any major issues or controversies.

Analyze the electoral process, including voter turnout, campaign strategies, and election results.

Assess the implications of the election outcome on the country's political landscape and future direction.

Task 3: Comparative Analysis

Compare and contrast the electoral processes and outcomes of two or more countries that held elections in 2024.

Identify similarities and differences in terms of electoral systems, campaign dynamics, and political implications.

Discuss any lessons or insights that can be drawn from these comparative analyses.

Submission Guidelines:

Your assignment should be neatly organized and typed.

Use appropriate headings and subheadings to structure your work.

Provide citations for any sources used, including websites, books, or articles.

Ensure that your analysis is well-reasoned and supported by evidence.

The assignment should be submitted by [insert submission date] to [insert submission details].

GEOGRAPHY

Project work-

(Project work should be done in a file. The project work should comprise 20-30 pages excluding photographs, maps and diagrams etc.)

1. TOPIC: REGIONAL ECONOMIC DEVELOPMENT

(CASE STUDIES: CHAPTER- 20)

Case studies will be preceded by a brief information about the meaning of development, multilevel planning and planning regions.

Aspects to be covered for case studies will be their geographical location, resource base development history, occupation, agriculture, industrial activity and issues of development.

1. Area development of Chattisgarh region- mining, silk industry and farming.
2. Electronic Industry in Bengaluru – development, extent, importance and problems.
3. Growth of Haldia Port- its industries and hinterland.

Please note that the project work is the part of your final practical work. You will submit the file when you will report back to the school.

2. Solve the unit question paper.

SOCIOLOGY

REVISION-

Chapter 1 – Part 1, 2 & 3 (Write the key words of each question on a separate note book as a study material for winter camp)

PROJECT-2

Specific topics allotted to the students in classroom

Format of the PROJECT WORK is as follow-

- Cover page
 - Index
 - Chapter- 1 – Introduction
 - Chapter 2- Review of Literature
 - Chapter-3 – Significance of the study
 - Chapter-4 – Hypothesis & Objectives
 - Chapter -5 – Research Methodology
 - Chapter-6 - Findings
 - Chapter -7 –Conclusion
 - Suggestions, if any
 - Bibliography- books & Internet sites (web address)
 - Appendix - pictures
- Project must be done in practical file.
 - Students can use the various internet sites, read PDF files and online books related to the topic
 - Introduction should be of 2 pages and review of literature should be of 1 page.
 - Write down specific and relevant set of questions and conduct interviews
 - Mode of interview- manually or goggle forms
 - Bibliography: Web- address of each web site along with date and time must be noted.
 - Collect some pictures, newspaper cuttings and any others evidences

LEGAL STUDIES

1. Research the following case studies and submit your findings on any three:

(a) Lalman Shukla v Gauri Dutt case - 1913 40 ALJ 489

(b) Balfour v Balfour [1919] 2 KB 571

(c) Mohori Bibee v Dharmodas Ghose, [1903] UKPC 12

(d) Chikham Amiraju v Chikham Seshamma
ILR (1918) 41 Mad 33, 36.

(e) Derry v Peek (1889) LR 14 AC 337 at p.
374.

(f) Raffles v Wichelhaus (1864) 2 Hurl & C
906.

2. Write any 15 maxims along with their meaning and illustrations

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