



BISHOP SCOTT
SENIOR SECONDARY GIRLS' SCHOOL

HOLIDAY HOMEWORK
2026-27

GRADE - XII

✦ "Learning never stops, even on holidays!" ✦



SESSION: 2026-2027

DEAR PARENTS

Vacation is the time for children to explore their myriad interests and indulge in various activities which would lead to their all-round development.

Summer Vacation is the most awaited time for both parents and kids. We have tried to keep the homework simple, informative, interesting, and fun-filled.

Here are a few tips for parents to act as facilitators to help your child balance her eagerness in pursuing adventure, creativity, and self-expression with the development of responsibility:

- ***Make sure that you are spending quality time with your wards.***
- ***Teach them the importance of moral values in their lives.***
- ***Motivate them to read good books.***
- ***Encourage and help your child in shouldering responsibilities in household chores. It will aid them to be independent.***
- ***Keeping in view the prevailing situation, indulge yourself in various indoor games with them.***
- ***Encourage the child to wish 'Good Morning' and 'Good Night' to everybody.***
- ***Encourage the child to speak simple sentences in English.***
- ***Talk respectfully with the child and encourage your child to do the same.***
- ***Motivate the child to use polite words such as 'Please', 'Thank You', 'Sorry', 'May I...?'***
- ***Revise the work done in the classes.***

Please note: *Prepare a systematic timetable and follow it religiously from the very first day. Allow them to complete homework on their own under your guidance. Make these holidays memorable for the young learners by providing a nurtured and stimulated environment at home which is full of fun, excitement, and learning. Wish you all a safe and healthy holiday ahead!*

GRADE XII/ ENGLISH CORE (301)

Answer the following questions in 40-50 words

Lost Spring (Anees Jung)

How does Saheb's attitude toward work reflect the loss of childhood freedom? Why is Mukesh's dream both hopeful and tragic?

How does the title Lost Spring symbolise more than just poverty? What role does tradition play in trapping families in poverty?

The Last Lesson (Alphonse Daudet)

How does Franz's regret represent a larger human tendency? Why does M. Hamel call French "the most beautiful language"? How does language function as a symbol of identity in the story? What transformation occurs in Franz during the lesson?

My Mother at Sixty-Six (Kamala Das)

How does the poet use imagery to convey fear of loss?

Why is the comparison with "late winter's moon" significant? How does the poet's smile reflect emotional conflict?

What universal theme does the poem explore through a personal moment?

The Third Level (Jack Finney)

How does Charley's escape reflect modern anxieties? Why is the third level both real and imaginary?

How does Sam's letter blur the line between fantasy and reality? What does Galesburg symbolise in Charley's mind?

Investigatory Project

Directions:

Prepare an English Investigatory Project / Activity File on any one of the following language-based topics. The work must be original and include examples, analysis, and a brief conclusion. The project should be neatly presented (10-12 pages) and submitted on the reopening day.

Topics:

1. Misuse of English in Public Spaces

Title: "Common Errors in Public English Usage"

Do:

- Take photos or note:
- Signboards
- Notices
- Menus
- Analyse grammar/spelling mistakes

2. Slang and Youth Language

Title: "Slang Among Teenagers: A Linguistic Study" Include:

- Collect slang words
- Meaning + context
- Why slang evolves

3. Formal vs Informal English

Title: "Difference Between Formal and Informal Communication" Include:

- Compare: Emails vs WhatsApp chats
- Show: Tone
- Vocabulary
- Sentence structure

Structure

Cover Page

- Certificate
- Acknowledgement
- Index

- Introduction
- Objective
- Main Content (your topic)
- Survey / Examples (if applicable)
- Analysis
- Conclusion
- Bibliography

GRADE XII / PHYSICS (042)

Section A: Subject-Based Questions (15 Questions)

Very Short Answer Questions:

1. State Coulomb's law in electrostatics.
2. Define electric field intensity at a point.
3. Why do electric field lines never intersect each other?
4. State the SI unit of electric flux.
5. What happens to the electrostatic force between two charges if the distance between them is doubled?

Short Answer Questions:

6. Differentiate between conductors and insulators on the basis of charge distribution.
7. Define electric dipole and write the expression for dipole moment.
8. Explain the variation of electric field with distance from a point charge.
9. State Gauss's theorem and write its mathematical form.
10. Why is the electric field inside a conductor zero in electrostatic equilibrium?
11. Distinguish between electric potential and potential difference.
12. Two charges $+4 \mu\text{C}$ and $+9 \mu\text{C}$ are separated by a distance of 3 m in vacuum. Calculate the electrostatic force between them.

Long Answer / Numerical Questions:

13. Derive the expression for electric field intensity due to an electric dipole on its axial line.
14. Derive the expression for capacitance of a parallel plate capacitor.
15. A capacitor of capacitance $5 \mu\text{F}$ is charged to a potential difference of 200 V. Calculate:
 - Charge stored
 - Energy stored in the capacitor

Section B: Portfolio Questions (5 Questions)

Questions Based on the Indian States Allocated by CBSE for Bihar:

1. Mizoram receives high rainfall and frequent thunderstorms. Explain how lightning is related to electrostatic charges.
2. Tripura has several power distribution systems in urban and rural areas. Why is earthing important in electrical installations?
3. Observe any electronic device used at home or school that contains capacitors. Write:
 - Name of the device
 - Purpose of the capacitor used
 - One advantage of using capacitors in the device

Interesting Subject-Based Questions:

4. Why do birds sitting on high-voltage transmission wires not get electric shock?
5. Why does a plastic comb attract small pieces of paper after being rubbed with dry hair.

Section C: Activity Work

Activity File Work

1. Collect information and pictures of devices based on electrostatic principles such as photocopiers, laser printers, and electrostatic precipitators.
2. Prepare a chart showing applications of capacitors in daily life.
3. Draw neat labelled diagrams of electric field lines for:
 - Isolated positive charge
 - Isolated negative charge
 - Electric dipole

Instructions for Students

- Write all answers neatly in your Physics notebook.
- Show complete derivation steps wherever required.
- Use proper SI units and symbols.
- Draw neat and labelled diagrams.
- Submit the assignment on the date assigned by the teacher

GRADE XII / CHEMISTRY / HALOALKANES AND HALOARENES (2)

One word or one line answers questions:-

1. What is the physical state of Methyl chloride?
2. What is the order of boiling point of alkyl halides for the same alkyl group?
3. What is the order of alkyl halide having same halogen atom (same homologous series)?
4. What is the order of boiling point of the isomeric alkyl halides?
5. What is the order of the compounds having same number of carbon atom but number of halogen atom increases?
6. What is the order of boiling point of dihalobenzenes?
7. Which one of the dihalobenzenes having maximum boiling point?
8. What is the order of melting point of dihalobenzenes?
9. Which one of the dihalobenzenes having maximum melting point?
10. Why o – dihalobenzene having maximum boiling point?
11. Why p – dihalobenzene having maximum melting point?
12. Which haloalkanes are lighter than water?
13. What is the order of density of haloarenes?
14. What is the order of stability of haloalkanes?
15. What is the order of dipole moment of halomethane?
16. Write any two examples of ambident nucleophile.
17. What is the order of reactivity of alkyl halides towards SN1 reaction?
18. What is the order of reactivity of alkyl halides towards SN2 reaction?
19. What happens when alkyl halide reacts with KCN?
20. What happens when alkyl halide reacts with AgCN?
21. What happens when alkyl halide reacts with KNO₂?
22. What happens when alkyl halide reacts with AgNO₂?
23. What happens when alkyl halide reacts with NH₃?
24. What happens when alkyl halide reacts with NaI ?
25. What happens when alkyl halide reacts with NaOH?
26. What happens when alkyl halide reacts with water?
27. What happens when alkyl halide reacts with LiAlH₄?
28. Which types of SN reaction involves only back side attack of Nucleophile?
29. What happens when an optically active alkyl halide undergo unimolecular substitution reaction?

- (a) A is square (b) A is rectangular (c) A is diagonal (d) A is identity
- iv. If A is a square matrix such that $A^2 = I$, then A^{-1} is:
 (a) A (b) I (c) $-A$ (d) A^2
- v. If determinant of a matrix is zero, then the matrix is:
 (a) Identity (b) Singular (c) Non-singular (d) Diagonal
- vi. If A is invertible, then $(A^{-1})^{-1}$ equals:
 (a) A (b) I (c) A^2 (d) $-A$
- vii. If two rows of a determinant are identical, then its value is:
 (a) 1 (b) -1 (c) 0 (d) Cannot be determined
- viii. The value of determinant remains unchanged if:
 (a) Two rows are interchanged (b) A row is multiplied by a scalar
 (c) A multiple of one row is added to another row (d) All elements are doubled

B. Assertion and Reason based questions.

- a) Both A and R are true and R is correct explanation
 b) Both A and R are true but R is not correct explanation
 c) A is true but R is false
 d) A is false but R is true
- ix. **Assertion (A):** If A is a square matrix, then $|A^T| = |A|$.
Reason (R): Transpose of a matrix does not change its determinant.
- x. **Assertion (A):** If A is singular, then A^{-1} exists.
Reason (R): Determinant of a singular matrix is zero.

C. Very Short Answer Type Questions.

2. Find the value of x if $\begin{vmatrix} x & 2 \\ 3 & 4 \end{vmatrix} = 0$
3. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, find A^{-1} .
4. Evaluate the determinant: $\begin{vmatrix} 2 & -1 & 3 \\ 0 & 4 & 5 \\ 1 & -2 & 1 \end{vmatrix}$
5. Find k such that the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & k \end{bmatrix}$ is singular:
6. If A is a matrix such that $A \cdot \text{adj}(A) = 5I$, find $|A|$.

D. Short Answer Type Questions.

7. Solve using matrix method: $2x + y = 5$, $3x - y = 4$
8. Find the adjoint of matrix: $A = \begin{bmatrix} 2 & -1 & 0 \\ 1 & 3 & 2 \\ 0 & 5 & -2 \end{bmatrix}$
9. Prove that determinant of a triangular matrix is equal to the product of its diagonal elements.

10. If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, verify that $A \cdot \text{adj}(A) = |A|I$.

11. Evaluate: $\begin{vmatrix} x & a & a \\ a & x & a \\ a & a & x \end{vmatrix}$

E. Long Answer Type Questions.

12. Using properties of determinants, evaluate: $\begin{vmatrix} a+b & a & a \\ a & a+b & a \\ a & a & a+b \end{vmatrix}$

13. Using inverse matrix method, solve:

$$\begin{aligned} x + y + z &= 6, \\ 2x + 5y + z &= -4, \\ 2x + 3y + 8z &= 5 \end{aligned}$$

F. Case-Based Questions

14. Case Study (Matrices): In a coding system, a matrix is used for encryption:

$$B = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 4 \\ 5 & 6 & 0 \end{bmatrix}$$

- (a) Find the order of matrix B.
- (b) Write the minor of element b_{11} .
- (c) (i) Find the determinant of matrix B.

OR

- (c) (ii) Find the cofactor of element b_{23} .

15. A school stores marks of two students in three subjects using matrices:

	A	B	C
Day 1:	85	90	88
Day 2:	78	82	80

Where rows represent Day 1 and Day 2, and columns represent marks obtained by A, B, and C.

- (a) Write matrices P and Q as column matrices.
- (b) Find $P + Q$.
- (c) (i) Find the average marks of both students using matrices.

OR

- (c) (ii) Find the difference $P - Q$

GRADE XII / ACCOUNTANCY (055)

Fundamentals of Partnership

A. Very Short Answer Questions.

- 1. What is meant by partnership?
- 2. Define a Partnership Deed.
- 3. Who is a partner?
- 4. What is meant by mutual agency?
- 5. State any two essential features of partnership.
- 6. What is meant by profit-sharing ratio?
- 7. Define interest on capital.
- 8. What is meant by interest on drawings?

9. What is meant by partner's salary?
10. What is guarantee of profit?

B. Short Answer Questions.

11. Explain any three features of partnership.
12. What are the contents of a partnership deed? (any four)
13. State any four provisions of the Indian Partnership Act, 1932 in the absence of a partnership deed.
14. Distinguish between Charge against Profit and Appropriation out of profits.
15. Distinguish between fixed capital accounts and fluctuating capital accounts.
16. Explain the importance of a partnership deed.

C. Long Answer Question.

17. Explain the essential elements of a partnership firm.
18. Describe the provisions of the Indian Partnership Act, 1932 applicable in the absence of a partnership deed.
19. Explain the preparation of Profit and Loss Appropriation Account.
20. Explain the concept of past adjustments and state its need.

Nature and Valuation of Goodwill

D. Very Short Answer Questions.

21. What is meant by goodwill?
22. State any two features of goodwill.
23. What is meant by super profit?
24. Define normal profit.
25. What is meant by average profit?

E. Short Answer Questions.

26. Explain the nature of goodwill.
27. State any three factors affecting goodwill.
28. Distinguish between average profit and super profit.

F. Long Answer Questions.

29. Explain the methods of valuation of goodwill.
30. Explain the super profit method and Capitalisation method of goodwill valuation.

GRADE XII / BUSINESS STUDIES (054)

A. Very Short Answer Questions.

1. What is meant by management?
2. State any two characteristics of management.
3. What is meant by group activity in management?
4. Define effectiveness in management.
5. Define efficiency in management.
6. What is meant by management as a process?
7. State one feature of management as a dynamic function.
8. What is meant by intangible force in management?
9. Give one example showing management as a goal-oriented activity.
10. What is meant by coordination?

B. Short Answer Questions.

11. Explain any three characteristics of management.
12. Distinguish between efficiency and effectiveness.
13. Explain why management is considered a multi-dimensional activity.
14. Describe the objectives of management.

15. Explain the concept of coordination and its importance.
16. Is management a science or an art? Explain briefly.
17. Explain management as a profession.

C. Long Answer Questions.

18. Explain the nature and characteristics of management in detail.
19. Discuss whether management is a science, an art, or a profession.
20. Explain the importance of management for an organisation.

Consumer Protection Act, 2019:

D. Very Short Answer Questions.

21. Who is a consumer under the Consumer Protection Act, 2019?
22. What is meant by a complaint?
23. Define consumer rights.
24. What is meant by defect in goods?
25. What is meant by deficiency in services?
26. Who is a complainant?
27. What is meant by unfair trade practice?
28. Name the apex body formed under the Act.

E. Short Answer Questions.

29. Explain any three rights of consumers.
30. State any three responsibilities of consumers.
31. What are unfair trade practices? Explain any three.
32. Differentiate between defect and deficiency.
33. Who can file a complaint under the Act?

F. Long Answer Questions.

34. Explain the redressal machinery under the Consumer Protection Act, 2019.
35. Describe the rights and responsibilities of consumers.
36. Explain the reliefs available to consumers under the Act.

Project Work

Project Instruction

“Students, you are required to draft a project statement on the topic ‘General Principles of Management by Henri Fayol’ as per CBSE Class 12 guidelines.

Your project statement should include:

- A brief introduction to management
- Contribution of Henri Fayol
- Explanation of the 14 principles of management
- Relevance of these principles in present-day business
- A short conclusion

Guidelines:

- Write in your own words
- Keep the language simple and clear
- Maintain proper presentation and neatness
- The statement should be around 1–2 pages

Be prepared to explain your project in the viva.”

GRADE XII / ECONOMICS (030)

Chapters Covered

- Circular Flow of Income
- Basic Concepts of Macroeconomics
- Measurement of National Income

17. Who discovered Harappa and Mohenjodaro?
18. Who was R.E.M. Wheeler?
19. Explain how different methods of irrigation were developed for agriculture in the Harappan sites
20. Which architectural features ; of Mohenjodaro indicate planning?
21. Who adopted the Brahmi and Kharosti script and when?
22. How many Mahajanpadas were there?
23. What were Dharmasutras?
24. What were Ganas or Sanghas?
25. What were Dharmasutras?
26. Name the famous and powerful rulers of Magadha.
27. Who started the Mauryan Empire?
28. Name the five major political centers in the Mauryan Empire.
29. Where the Colossal statues of Kushana rulers have been found?
30. Who composed Prayaga Prashasti?
31. Who was James Prinsep? Which two ancient scripts were deciphered by him?
32. Give a brief description of languages and scripts of inscriptions of Ashoka.
33. Name three types of sources about the history of Gupta rulers.
34. When and who built Sudarshana Lake? Which rulers got this lake repaired?
35. Who was Prabhavati Gupta? Tell a rare example found about her.
36. 'In some inscriptions, only titles adopted by Ashoka are given but on others, both his name and titles are given.' How did historians assess that all these inscriptions are made by a single ruler?
37. Why Ashoka's lion emblem is today considered important?
38. Who was the Grihapati?
39. How did Magadha become powerful Mahajapada? Explain.
40. What is 'Arthashastra'? What is its importance in Indian- history?

MAP WORK

- Locate different sites of harappan civilisation of political map of india

INVESTIGATORY PROJECT:

- Make a project on town planning and artefacts used in harappan civilisation and compare with today's world.
- Make a ppt on mahabharata , a dynamic text.

GRADE XII / GEOGRAPHY (029)

Prepare the geography practical file from the following chapters

Chapter- 1 Data – Its Source and Compilation

1. What is Data, Sources of data: Primary, Secondary and Unpublished sources.
2. Tabulation and Classification of Data
3. Grouping of Data
4. Frequency Polygon

Chapter- 2 Data Processing

1. Tabulating and processing of data
2. Measures of Central Tendency: Mean, Median and Mode
3. Comparison of Mean, Median and Mode

Chapter- 3 Graphical Representation of Data

1. Representation of data- General rules for drawing diagrams, graphs and maps, construction of line graphs, polygraphs, simple bar diagrams, line and bar diagram, Multiple bar, Compound bar, Pie diagram, Flowchart
2. Thematic maps; Construction of Dot Map; Choropleth Map and Isopleth map

GRADE XII / POLITICAL SCIENCE (028)

1. Highlight any one feature of the multi-polar world as visualized by both Russia and India.
2. Which one of the following statements about the Berlin wall is false?
 - (i) It symbolised the division between the capitalist and the communist world.
 - (ii) It was built immediately after the Second World War.
 - (iii) It was broken by the people on 9 November 1989.
 - (iv) It marked the unification of the two parts of Germany.
3. Define 'Bipolarity'.
4. Highlight any one major distinction between the Soviet economy and the capitalist economy.
5. Highlight any one major distinction between the Soviet economy and the capitalist economy.
6. How was the US benefitted by the Soviet disintegration?
7. Which two republics of the USSR have had violent secessionist movements at the time of its disintegration?
8. On which ideology was the Soviet political system based?
9. Mention the name of the Eastern alliance led by the Soviet Union.
10. Mention any two characteristics of the Soviet economy during the Cold War days.
11. Why is it said that the collapse of the Berlin Wall signified the collapse of the bipolar world?
12. List any two consequences of 'Shock Therapy'.
13. List any two differences between the socialist and communist parties.
14. Describe any four consequences of the disintegration of the Soviet Union.
15. In what three ways did the collapse of the Soviet Union affect world politics?
16. Name the leader of the freedom movement of India who was popularly known as Frontier Gandhi.
17. Name the leader who played a historic role in negotiating with the rulers of princely states to join the Indian Union.
18. What is the 'Two Nation Theory' advanced by Muslim League?
19. Which four princely states of India initially resisted to join the Indian Union?
20. What was the huge obstacle in nation building at the time of India's independence?
21. Why were the states reorganised on linguistic basis in India in 1956?
22. What do you understand by 'instrument of accession'?
23. When and by whom was the 'tryst with destiny' speech delivered?
24. Give the name of two provinces which were also divided during the partition of India?
25. Why did the leaders of the National Movement cherish the ideal of the secular nation? Give any one reason.
26. While the rest of the country was reorganised on linguistic lines in 1950s, why had Punjab to wait till 1966?
27. Identify any two consequences of the partition of India in 1947.
28. What was meant by princely states? How many princely states were there in India at the time of independence?
29. What does the special status given to Jammu and Kashmir under Article 370 mean?

PROJECT:

- **Make a report on Arab Spring**
- **Paste relevant pictures.**
- **Reasons for the Arab Spring**
- **Consequences of Arab Spring**

GRADE XII / PHYSICAL EDUCATION (048)

Chapters: Management of Sporting Events & Children & Women in Sports SECTION A

1. What is a tournament?
2. What is the full form of IOC?
3. What is a knock-out tournament?
4. Define fixture.
5. What is a league tournament?
6. What is intramural competition?
7. What is extramural competition?
8. What is the role of a technical committee?
9. What is budgeting in sports events?
10. Define publicity in sports management.
11. What is seeding?
12. What is bye in a tournament?
13. Define women empowerment in sports.
14. What is gender equality?
15. Name any one female athlete of India.
16. What is female athlete triad?
17. What is amenorrhea?
18. What is osteoporosis?
19. What is balanced diet?
20. Define malnutrition.
21. What is postural deformity?
22. What is knock knee?
23. What is bow legs?
24. What is obesity?
25. Define motor development.
26. What is growth?
27. What is development?
28. What is bullying in sports?
29. Define harassment.
30. What is safety in sports?

SECTION B

31. Write any two objectives of intramural tournaments.
32. Differentiate between knock-out and league tournament.
33. Write two functions of organizing committee.
34. What are the advantages of league tournament?
35. Explain the concept of seeding.
36. Write two importance of budgeting.
37. Explain any two roles of publicity committee.
38. What are extramural tournaments?
39. Write two causes of female athlete triad.
40. Explain any two disadvantages of female athlete triad.
41. Write two benefits of women participation in sports.
42. Explain any two common postural deformities.
43. What are the causes of knock knees?
44. Write two preventive measures for obesity.

45. Explain growth and development briefly.
46. Write two factors affecting motor development.
47. What are the symptoms of osteoporosis?
48. Write two safety measures for children in sports.
49. What is bullying? Give two examples.
50. What is harassment? How can it be prevented?

SECTION C

51. Explain the procedure of knock-out tournament.
52. Describe the steps for organizing a sports event.
53. Explain the importance of intramural competitions.
54. Discuss the role of different committees in sports events.
55. Explain female athlete triad in detail.
56. Describe the causes and prevention of obesity in children.
57. Explain different postural deformities and their correction.
58. Discuss the importance of women participation in sports.
59. Explain the factors affecting growth and development.
60. Describe the preventive measures for harassment in sports.

SECTION D

61. Explain in detail the planning process of a sports event.
62. Describe the types of tournaments with their advantages and disadvantages.
63. Explain female athlete triad and its effects on health.
64. Discuss various postural deformities and corrective measures.
65. Explain the role of sports in empowerment of women.

GRADE XII / YOGA (841)

SECTION - A

1. Shatkarma refers to:

a) Meditation techniques	b) Six cleansing processes
c) Yoga postures	d) Breathing exercises
2. Neti is used for cleaning:

a) Eyes	b) Nose	c) Stomach	d) Intestine
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3. Dhauti is related to cleansing of:

a) Digestive tract	b) Brain	c) Lungs	d) Skin
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4. Basti is associated with:

a) Nasal cleaning	b) Colon cleansing	c) Eye washing	d) Ear cleaning
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5. Kapalbhati is mainly for:

a) Relaxation	b) Cleansing lungs	c) Mental concentration	d) Digestion
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6. Yogasana improves:

a) Only flexibility	b) Physical and mental health	c) Only strength	d) Only stamina
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7. Tadasana is also called:

a) Tree Pose	b) Mountain Pose	c) Cobra Pose	d) Lotus Pose
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8. Bhujangasana is helpful for:

a) Back flexibility	b) Eye vision	c) Hearing	d) Digestion only
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9. Vajrasana is done:

a) Standing	b) Sitting	c) Lying	d) Jumping
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10. Padmasana is used for:

a) Sleeping	b) Meditation	c) Running	d) Stretching
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11. Pranayama means:

a) Physical exercise	b) Control of breath	c) Sleeping	d) Walking
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12. Anulom Vilom involves:

13. a) Fast breathing b) Alternate nostril breathing c) Holding breath only d) No breathing
 Bhrumari pranayama produces:
 a) Loud sound b) Humming sound c) No sound d) Crying sound
14. Pranayama helps in:
 a) Stress reduction b) Increasing stress c) Weakness d) Laziness
15. Kapalbhathi is:
 a) Meditation b) Breathing exercise c) Running exercise d) Stretching
16. Dhyana means:
 a) Sleeping b) Meditation c) Eating d) Talking
17. Meditation helps in:
 a) Anxiety b) Concentration c) Weakness d) Anger
18. Dhyana is a part of:
 a) Ashtanga Yoga b) Running c) Gym d) Sports
19. Regular meditation improves:
 a) Focus b) Laziness c) Stress d) Tension
20. Meditation is best done in:
 a) Noise b) Calm environment c) Crowd d) Market
21. A yoga trainer works in:
 a) Schools b) Hospitals c) Fitness centers d) All of these
22. Yoga therapist treats:
 a) Diseases b) Injuries c) Mental stress d) All of these
23. Minimum qualification for yoga teacher:
 a) No education b) Certification course c) Driving license d) Diploma in sports
24. Yoga career includes:
 a) Instructor b) Therapist c) Researcher d) All
25. Demand for yoga professionals is:
 a) Decreasing b) Increasing c) Static d) None
26. Communication skill means:
 a) Talking only b) Exchange of information c) Writing only d) Listening only
27. Self-management includes:
 a) Time management b) Discipline c) Goal setting d) All
28. ICT stands for:
 a) Information Communication Technology b) Internet Computer Technology
 c) Indian Communication Tool d) None
29. Email is an example of:
 a) Communication b) Transport c) Cooking d) Playing
30. Basic ICT skill includes:
 a) Typing b) Using internet c) Using computer d) All

SECTION - B

31. Define Shatkarma and explain its importance.
 32. Explain Neti and its benefits.
 33. Describe Dhauti and its types.
 34. What is Kapalbhathi? Explain its benefits.
 35. Define Yogasana and its advantages.
 36. Explain Tadasana with steps and benefits.
 37. Describe Bhujangasana and its uses.
 37. What is Vajrasana? Mention its benefits.
 39. Define Pranayama and its importance.
 40. Explain Anulom Vilom.

41. What is Bhramari Pranayama?
42. Define Dhyana and its benefits.
43. Explain importance of meditation in daily life.
44. Write short note on career opportunities in yoga.
45. What are communication skills? Explain types.
46. Define self-management skills with examples.
47. Explain importance of time management.
48. What is ICT? Explain its uses.
49. Write steps of sending an email.
50. Explain importance of basic computer skills.

GRADE XII / INFORMATICS PRACTICES (065)

SECTION A: OBJECTIVE TYPE

1. Answer the following questions:

1. What is Pandas?
2. Define Series in Pandas.
3. What is a DataFrame?
4. Difference between Series and DataFrame.
5. What is index in Pandas?
6. Explain the use of dtype.
7. What is the purpose of shape attribute?

2. Differentiate between:

- List and Series
- Series and DataFrame
- Row and Column

3. Series Creation

1. Create a Series from a list of 5 numbers.
2. Create a Series from a dictionary.
3. Display first and last elements of a Series.
4. Perform basic operations (addition, multiplication) on Series.

4. DataFrame Creation

1. Create a DataFrame using dictionary of lists.
2. Create a DataFrame using list of dictionaries.
3. Display:
 - First 5 rows
 - Last 5 rows
4. Display column names and index.
5. Find shape and size of DataFrame.

GRADE XII / APPLIED MATHEMATICS (241)

General Instructions:

- *Solve all questions in a separate notebook
- *Bring the completed work when school reopens
- *Marks will be awarded for neatness and accuracy
- *Use proper mathematical notations and steps

Q1. Multiple choice questions

(i) $A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ a & b & -1 \end{bmatrix}$, Find A^2

- (a) a null matrix (b) a unit matrix (c) $-A$ (d) A
- (ii) If A and B are symmetric matrices of the same order, then $(A \times B)^T - (B \times A)^T$ is a
(a) skew-symmetric matrix (b) null matrix (c) symmetric matrix (d) none of these
- (iii) If A and B are two matrices such that $AB = A$ and $BA = B$, then B^2 is equal to
(a) B (b) A (c) 1 (d) 0
- (iv) $AB = A$ and $BA = B$, where A and B are square matrices, then
(a) $B^2 = B$ and $A^2 = A$ (b) $B^2 \neq B$ and $A^2 = A$ (c) $A^2 \neq A$ and $B^2 = B$ (d) $A^2 \neq A$ and $B^2 \neq B$

B

- (v) If A and B are two matrices such that $AB = B$ and $BA = A$, then $A^2 + B^2$ is equal to
(a) $2AB$ (b) $2BA$ (c) $A + B$ (d) AB
- (vi) If $x < 7$ then
(a) $-x < -7$ (b) $-x \leq -7$ (c) $-x > -7$ (d) $-x \geq -7$
- (vii) If $-3x + 17 < -13$ then
(a) $x \in (10, \infty)$ (b) $x \in [10, \infty)$ (c) $x \in (-\infty, 10]$ (d) $x \in [-10, 10)$
- (viii) If x is a real number and $|x| < 5$ then
(a) $x \geq 5$ (b) $-5 < x < 5$ (c) $x \leq -5$ (d) none of these

Assertion and Reason based questions.

- a) Both A and R are true and R is correct explanation
b) Both A and R are true but R is not correct explanation
c) A is true but R is false
d) A is false but R is true

(ix) **Assertion (A)** : If a matrix A is both symmetric and skew – symmetric , then A is a zero matrix.

Reason (R) : A matrix A is symmetric if $A^T = A$ and skew – symmetric if $A^T = -A$

(x) **Assertion (R)**: Determinant of a skew – symmetric matrix of order 3 is zero.

Reason (A): For any matrix , $|A| = -|A|$ where , $|A|$ denotes the determinants of matrix A .

SORT ANSWER TYPE QUESTIONS

2 Solve this system of in equation in R.

$$0 \leq 2x - 5y + 10$$

3. If $A = \begin{bmatrix} \ln x & -1 \\ -\ln x & 2 \end{bmatrix}$ and if $\det(A) = 2$, then find the value of x .

4. If $x = -9$ is root of $\begin{bmatrix} x & 3 & 7 \\ 2 & x & 2 \\ 7 & 6 & x \end{bmatrix} = 0$, then find the value of other two roots.

5. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 3 \\ -1 & 5 \end{bmatrix}$ and $C = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$, Find the value of $3A - 2B + 3C$.

6. Find the matrices X and Y , if $X+Y = \begin{bmatrix} 5 & 2 \\ 0 & 9 \end{bmatrix}$ and $X - Y = \begin{bmatrix} 3 & 6 \\ 0 & -1 \end{bmatrix}$

SHORT ANSWER TYPE QUESTION

7. In a certain city there are 30 colleges. Each college has 15 peons, 6 clerks, 1 typist and 1 section officer. Express the given information as a column matrix. Using scalar multiplication, find the total number of posts of each kind in all the colleges.

8. The monthly incomes of Aryan and Babban are in the ratio 3 : 4 and their monthly expenditures are in the ratio 5 : 7. If each saves ₹ 15,000 per month, find their monthly incomes using matrix method. This problem reflects which value?
9. A firm produces three products P₁, P₂ and P₃ processed on three machines M₁, M₂ and M₃. Machine M₁ can process 25 units of P₁ or, 50 units of P₂ or, 75 units of P₃ per hour. M₂ can process 50 units of each product per hour. M₃ can process 50 or, 25 or, 100 units per hour of P₁, P₂ and P₃ respectively. The processing hours available on the machines M₁, M₂ and M₃ are 12, 12 and 13 respectively. Using determinants, find how many units of three products can be produced with the available time fully used?
10. Solve the following system of equations by matrix method:
- (i) $5x + 7y + 2 = 0, 4x + 6y + 3 = 0$
- (ii) $5x + 2y = 3, 3x + 2y = 5$

11. Evaluate :

$$\begin{bmatrix} 1 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 & 0 & 2 \\ 2 & 0 & 1 \\ 0 & 1 & 2 \end{bmatrix} \begin{bmatrix} 2 \\ 4 \\ 6 \end{bmatrix}$$

LONG ANSWER TYPE QUESTION

12. Solve the following system of the linear equations by Cramer's rule.

$$3x - y + z = 2$$

$$2x - 4y + 3z = -1$$

$$4x + y - 3z = -11$$

13. Express the matrix $\begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$ as the sum of symmetric and skew - symmetric matrix.

CASE STUDY BASED QUESTION

Q14. The following matrix gives the proportionate mix of constituents used for the three fertilizers:

		Constituent			
		A	B	C	D
Fertilizer	I	0.5	0	0.5	0
	II	0.2	0.3	0	0.5
	III	0.2	0.2	0.1	0.5

- (i) If sales are 1000 tins (of one kg each) per week each consisting of 20 % being fertilizer I, 30 % being fertilizer II and 50 % being fertilizer III, how much of each constituent is used?
- (ii) If the cost of each constituent is Rs. 5 , Rs. 6 , Rs. 8 and Rs. 10 per 100 gms respectively , how much does one kilogram tin of each fertilizer cost ?
- (iii) What is the total cost per?
15. The total sales (S) in thousand of rupees of a firm selling two products X and Y is given by the relationship: $S = a + bX + cY$. Sales data firm January – March are given below :

Month	X	Y	Total sales (S)
January	2	3	12
February	6	2	13
March	5	3	15

Using determinant method , determine the sales in the next month when it sells 4 units of X and 5 units o Y.

ENJOY

SUMMER VACATION

**"Summer is messy, Summer is fun,
Trips to the beach, In the hot, hot sun,
Let's give summer, A big fat cheer!
Summer is the best time of the year".
Happy Summer**

