

## FLORENCE INTERNATIONAL SCHOOL (Senior Secondary Affiliated With CBSE | ISO 21001:2018 Certified) SUMMER HOLIDAY HOMEWORK (2025-26) GRADE – XII

# Dear Students, Holidays are an integral part of a student's life.

It is a time for fun, a time to explore are given a meaningful direction, it results in a productive and enjoyable time. Let's use these holidays to pursue some hobbies and apply our minds creatively to learn new thing and to bring a change in the environment, in our own individual way.

# General Instructions for Students:

- Follow the instruction given carefully with each activity.
- You can take help of the internet, newspapers magazines, encyclopaedia to Collect information and pictures.
- Make you activity sheets presentable and attractive.

# A few suggestions for parents:

- Spend quality time with your children and have fun time together
- Help the children to become independent by giving them responsibilities. Involve them in small household activities.
- Inculcate in them good manners, healthy habits and respect for elders.
- Converse with your children in English.
- Encourage your children to read books to enhance their language skills. Reading will also boost their interpretative skills and provide them valuable literary experience.
- Cultivate sportsmanship by encouraging your children to play various Indoor games.
- Remember that Summer Vacation is the time to relax and enjoy.
- So, spend these holidays creating a nurturing and stimulating environment filled with fun, frolic, learning and education.
- Have a family dinner every day.
- Play board games with your parents and sibling and show them who is the

smartest.

• Spend some quality time with an elderly person in the family and ask them to share their childhood days.

## <u>ENGLISH</u>

#### **PROJECT WORK FOR INTERNAL ASSESSMENT** Instructions:

• There are 5 topics and you need do the project on **any one** topic

- You have to submit the project in your own handwriting.
- Word limit: 1000 words max.

#### The Project-Portfolio should include the following:

- Cover page with the title of the project, school details/details of students
- Statement of purpose/objectives/goals
- Acknowledgement
- Certificate of Completion under the guidance of the teacher.
- Index/Table of Contents
- Body (1000 words Introduction, Description/Report/Explanation, Conclusion)
- If possible, photographs that capture the positive learning experiences of the student(s).
- List of resources/ Bibliography.

# **TOPICS:**

- 'Freedom From Fear' is more important than 'Legal Justice'. (Keeping in view the chapter 'Indigo' by Louis Fischer)
- Linguistic Chauvinism and the Impact of Foreign Culture on Regional Languages (With reference to the chapter 'The Last Lesson' by Alphonse Daudet)
- "The Third Level' is a nostalgic longing for a simpler & happier time in history" (With reference to the chapter, 'The Third Level' by Jack Finney)
- "Lost Spring describes the pitiable condition of poor children who have been forced to miss the joy of childhood due to the socio-economic condition that prevails in this man-made world." (With reference to the chapter, 'Lost Spring' by Anees Jung)
- Aunt Jennifer's Tigers and woman emancipation in a male chauvinistic society. (Keeping in view the poem 'Aunt Jennifer's Tigers' by Adrienne Rich')

#### <u>WORKSHEET</u> SECTION A ( READING)

Dr. Avul Pakir Jainulabdeen Abdul Kalam, popularly known as A.P.J. Abdul Kalam, was one of India's most respected scientists and the 11th President of the country. Born on October 15, 1931, in Rameswaram, Tamil Nadu, Dr. Kalam came from a humble background. His

early life was marked by financial struggle, yet he was determined to succeed through education and hard work.

Dr. Kalam studied aerospace engineering and began his career at the Defence Research and Development Organisation (DRDO). He later joined the Indian Space Research Organisation (ISRO), where he played a crucial role in India's first satellite launch vehicle (SLV-III). Known as the "Missile Man of India," he contributed significantly to the development of ballistic missile technology and played a key part in India's 1998 nuclear tests at Pokhran.

Despite his scientific achievements, Dr. Kalam remained deeply humble and committed to education. He was passionate about inspiring young minds and believed that students were the future of the nation. He would often say, "Dream, dream, dream. Dreams transform into thoughts and thoughts result in action."

In 2002, Dr. Kalam became the President of India. Known as the "People's President," he was admired for his simple lifestyle, wisdom, and ability to connect with people from all walks of life. Even after his presidency, he continued to travel, teach, and speak to students across the country. Dr. Kalam passed away on July 27, 2015, while delivering a lecture at IIM Shillong, leaving behind a legacy of knowledge, humility, and inspiration.

Dr. A.P.J. Abdul Kalam's life teaches us that with dedication, education, and a strong moral compass, one can rise above challenges and make a lasting impact on society. He remains a role model not only for Indians but for people around the world who strive to live with purpose and integrity.

#### Q1. Read the passage above and answer the following questions:

1. MCQ

What was Dr. Kalam popularly known as?

- a) Missile Father
- b) Rocket Professor
- c) People's President
- d) Science Minister
- 2. Assertion and Reason

Assertion (A): Dr. Kalam was called the Missile Man of India.

Reason (R): He invented missiles for use in World War II.

- a) Both A and R are true, and R is the correct explanation of A.
- b) Both A and R are true, but R is not the correct explanation of A.

c) A is true, but R is false.

d) A is false, but R is true.

3. Fill in the blank

Dr. Kalam was delivering a \_\_\_\_\_ at IIM Shillong when he passed away.

4. Short Question

Why was Dr. Kalam known as the "People's President"?

5. Extract-Based MCQ

"Dream, dream, dream. Dreams transform into thoughts and thoughts result in action." What does this quote emphasize?

- a) Sleeping more helps in success
- b) Action without thought is enough
- c) Dreams are the beginning of progress
- d) Thoughts have no connection with success
- 6. Vocabulary

Find a synonym for "legacy" from the options below:

- a) Memory
- b) Inheritance
- c) Wealth
- d) Fame
- 7. Complete the sentence

If students follow Dr. Kalam's advice and stay dedicated to their dreams, \_\_\_\_\_

# **SECTION B (WRITING)**

**Q2.** You are M. Sharma. You have been invited by the Lions Club to act as one of the judges for a fancy dress competition for children.

i) But due to a previous engagement, you cannot accept this invitation. Write a formal reply to the President of the Club regretting your inability to accept the invitation. (word limit -50 words)

ii) Write a formal reply thanking them and accepting the above invitation (word limit -50 words)

# SECTION C (LITERATURE)

# Q3. Answer the following questions based on the extract:

"I used every way I knew to overcome this fear, but it held me firmly in its grip. Finally, one October, I decided to get an instructor and learn to swim. I went to a pool and practiced five days a week, an hour each day. The instructor put a belt around me. A rope attached to the belt went through a pulley that ran on an overhead cable. He held on to the end of the rope, and we went back and forth, back and forth across the pool, hour after hour, day after day, week after week."

(i) Complete the sentence:

The phrase "held me firmly in its grip" suggests that Douglas's fear of water was

(ii) Short Question:

What method did the instructor use to help Douglas overcome his fear of water?

(iii) Identify the figure of speech:

Identify the figure of speech in the phrase "back and forth, back and forth across the pool." (iv) Fill in the blank:

Douglas practiced swimming \_\_\_\_\_\_ a week, an hour each day.

Q4. Answer the following questions based on the extract: (CBSE 2023)

Now we will count to twelve

and we will all keep still.

For once on the face of the Earth

let's not speak in any language,

Let's stop for one second,

and not move our arms so much.

It would be an exotic moment

without rush, without engines,

## we would all be together

(i) The poet counts up to twelve as a countdown to

(a) lift arms.

(b) speak in different languages.

(c) stop all activities.

(d) be without engines.

(ii) Choose the option that displays the same poetic device as used in the third line of the extract :

- (a) lightning danced across the sky
- (b) greedy good doers
- (c) children spilling out of their homes
- (d) fight like cats and dogs

(iii) Complete the statement with reference to the extract :

The poet suggests we will all be together when \_\_\_\_\_.

(iv) The word 'exotic' in the extract most nearly means

(a) unique

(b) luxurious

(c) rich

(d) illusive

# Q5. Short Answer Questions (40–50 words each):

- A. The lesson 'The Rattrap' is both entertaining and philosophical. Do you agree with the statement? Give reasons. (CBSE 2024)
- B. Explain the metaphor of the rattrap.(CBSE 2023)
- C. Give examples from 'Keeping Quiet' to show that Neruda was peace loving. (CBSE 2019)
- D. How did William Douglas's fear of water start? (CBSE 2020)

# **Q6.** Answer the following questions (100 - 120 words)

A. Childhood fears are deeply entrenched in our mind. Determination, hard work and right training are needed to get rid of them. Comment on the statement in the light of Douglas' efforts to overcome his fear of water. (CBSE 2019)

B. Edla's empathetic and compassionate behavior changed the life of the rat trap seller. Do you think that an act of kindness can change a person's view of the world?

#### ECONOMICS

#### **Economics Project Files as Per CBSE**

- 1. Digital India Step towards the future
- 2. Goods and Service Tax Act and it's impact on GDP
- 3. Make in India The way ahead
- 4. Role of RBI in control of credit
- 5. Organic Farming Back to the Nature

## **WORKSHEET**

Ch- Money and Banking

- 1. What is the primary function of a commercial bank? (CBSE 2019)
- 2. Define money supply and explain its components. (CBSE 2018)
- 3. What is the role of the Reserve Bank of India in regulating money supply? (CBSE 2020)
- 4. Explain the concept of credit creation by commercial banks. (CBSE 2017)
- 5. What is the difference between a central bank and a commercial bank? (CBSE 2016)
- 6. Define bank rate and its impact on credit creation. (CBSE 2015)
- 7. What is open market operation? Explain its significance. (CBSE 2019)
- 8. Explain the concept of high-powered money. (CBSE 2018)
- 9. What is the function of a central bank as a lender of last resort? (CBSE 2020)
- 10. Define cash reserve ratio and its impact on credit creation. (CBSE 2017)

# National Income

11. What is national income accounting? Explain its importance. (CBSE 2019)

- 12. Define gross domestic product (GDP) and explain its calculation. (CBSE 2018)
- 13. What is the difference between GDP and GNP? (CBSE 2016)
- 14. Explain the concept of value added in national income accounting. (CBSE 2020)

15. What is the formula for calculating national income using the expenditure method? (CBSE 2017)

16. Define net domestic product (NDP) Giving reason explain how the following should be treated in estimation of national income: CBSE 2015

(i) Payment of interest by a firm to a bank

(ii) Payment of interest by a bank to an individual

(iii) Payment of interest by an individual to a bank

17. Define externalities. Give an example of negative eternity. What is its impact on welfare? CBSE 2014

#### HISTORY & POLITICAL SCIENCE

# OBJECTIVES

Project work will help students:

To develop skill to gather data from a variety of sources, investigate diverse viewpoints and arrive at logical deductions.

To develop skill to comprehend, analyse, interpret, evaluate historical evidence, and understand the limitation of historical evidence.

To develop 21<sup>st</sup> century managerial skills of co-ordination, self-direction, and time management,

To learn to work on diverse cultures, races, religions, and lifestyles.

To learn through constructivism-a theory based on observation and scientific study.

To inculcate a spirit of inquiry and research.

To communicate data in the most appropriate form using a variety of techniques.

To provide greater opportunity for interaction and exploration.

To understand contemporary issues in context to our past.

To develop a global perspective and an international outlook.

To grow into caring, sensitive individuals capable of making informed, intelligent, and independent choices.

1. Steps involved in the conduct of the project: Students may work upon the following lines as

Suggested:

- 1. Choose a Title Topic
- 2. Need of the Study, Objective of the Study
- 3. Hypothesis
- 4. Content-Timeline, Maps, Mind maps, Pictures, etc. (Organization of Material/Data Present Material/Data)
- 5. Analysing the Material/Data for Conclusion
- 6. Draw the Relevant Conclusion
- 7. Bibliography

2.Expected Checklist for the Project Work:

- 1. Introduction of topic /title
- 2 Identifying the causes, events, consequences and/or remedies
- 3 Various stakeholders and effect on each of them
- 4 Advantages and disadvantages of situations or issues identified
- 5. Short-term and long-term implications of strategies suggested during research

6. Validity, reliability, appropriateness, and relevance of data used for research work and for presentation in the project file

7. Presentation and writing that is succinct and coherent in project file

8 Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

# **Political Science**

#### Suggested topic

- 1. NAM-1961 to present times.
- 2. Division of Germany with special focus on the construction and dismantling of the Berlin Wall
- 3. CIS-Central Asian Republics
- 4. Disintegration of USSR with special focus on Gorbachev.
- 5. Arab Spring
- 6. Cover the negative as well as positive aspects of relationship between India and the following countries.

Focus on any one of the following (current updates should be highlighted):

- a) Relationship between india and Russia
- b) Relationship between India and China
- c) Relationship between India and Pakistan
- d) Relationship between India and Bangladesh
- 7. ASEAN

#### 9 BRICS

European Union and BREXIT

10. SAARC

11. India's Nuclear Policy

12. United Nations with focus on India's candidature in Security Council

13. UN Agencies-UNICEF, UNESCO, WHO

14. Pandemics: Covid 19- Its global impact (focus on worldwide cooperation and preparedness along with controversies (please collect newspaper clippings for the same)

15. Partition of India-Theory behind it and its legacy

16. Comparison between NITI AAYOG and Planning Commission and their contribution in India's

Development.

17. Election 2019- Rise of BJP and Downfall of Congress (1989-2019).

18. Imposition of Emergency in India

19. NDA III and NDA IV-Social and Economic welfare programmes.

#### History

A FEW SUGGESTIVE TOPICS FOR CLASS XII PROJECTS

1. The Indus Valley Civilization-Archaeological Excavations and New Perspectives

2. The History and Legacy of Mauryan Empire

"Mahabharat-The Great Epic of India

4. The History and Culture of the Vedic period

Buddha Charita

- 6. A Comprehensive History of Jainism
- 7. Bhakti Movement-Multiple interpretations and Commentaries.
- 8. The Mystical Dimensions of Sufism
- 9. Global Legacy of Gandhian Ideas
- 10. The Architectural Culture of the Vijayanagar Empire
- 11. Life of Women in the Mughal Rural Society
- 12. Comparative Analysis of the Land Revenue Systems Introduced by the Britishers in India
- 13. The Revolt of 1857- Causes; Planning & Coordination; Leadership, Vision of Unity
- 14. The Philosophy of Guru Nanak Dev
- 15. The Vision of Kabir
- 16. An Insight into the Indian Constitution
- 17. Comparative Study of Stupas and Pillar Edicts
- 18. Comparative Study of Mughal and Vijayanagar Architecture

(Projects are an imperative component in enhancing students learning with the related themes. In the research project, students can go beyond the textbook and explore the world of knowledge. They can conceptualise under the embedded themes. Forms of rubrics are a significant aspect and to be discussed in the classroom itself for clear understanding of concept & for assessment.)

# WORKSHEET (POLITICAL SCIENCE)

Chapter 2 Era of One Party Dominance

Very Short Answer Type Questions

1.Question. Which political party laid emphasis on the idea of one party, one culture and one nation?

2.Question. Which political party of India had leaders like A.K. Gopalan, E.M.S. Namboodiripad, and S.A. Dange?

3. Question. Who was the founder of Bharatiya Jana Sangh?

4.Question. In which year was the Election Commission of India set up and who was the first chief Election Commissioner of India?

5.Question. Name the founder president of the Congress Socialist Party. What name was given this party after 1948?

6.Question. Differentiate between one party dominance and one party system.

7.Question. When and why was the electronic voting machine used in India for the first time?

8. Question. How did socialist party origin?

9. Define faction.

10. When and by whom PRI party was formed?

Short Answer Type Questions

11. Question. How did the dominance of Congress Party in the first three general elections help in establishing a democratic

12. Question. Highlight any two features of ideology of Bharatiya Jana Sangh.

13.Question. Explain the major difference of ideoloav between that of Congress and the BharatiyaJanaSangh.

14. Question. State any two ideologies of the Swatantra Party.

15. Question. How has the method of voting changed from the first General Election of 1952 to the General Election of 2004?

16. Question. When was communist party emerged?

17.Question. "India's experiment with universal adult franchise appeared very bold and risky". Justify thestatement.

18.Question. Mention the aims and goals of Socialist Party of India. Why the party could not prove itself as an effective alternative to the Congress?

20.Question. What were the reasons for dominance of one party system in India?

21.Question. How did India's first general elections 1952 become a landmark in the history of democracy all over the world?

#### 22.CASE BASED QUESTIONS

Read the given passage carefully and answer the questions that follow:

Obstacles that be overcome. One of the major challenges is ensuring citizen participation and engagement in the process. This requires creating and the importance of active political participation. Another challenge is establishing and maintaining democratic institutions that are transparent, accountable, and independent. These institutions, such as the judiciary, electoral bodies, and administrative agencies, play a crucial role in upholding the principles of democracy. Additionally, the challenge lies in managing diverse interests, accommodating different viewpoints, and promoting inclusivity and equality. This involves addressing social divisions, promoting minority rights, and safeguarding the interests of marginalised groups. Lastly, building democracy requires fostering a culture of respect for human rights, freedom of expression, and the rule of law.

i.What is one of the major challenges in building democracy?

(a) Economic development.

(b)Cultural assimilation.

(c) Citizen participation.

(d) Centralised government.

ii. Which institutions are crucial for upholding the principles of democracy?

(a) Legislative bodies.

(b) Religious organisations.

(c) Media agencies.

(d) Corporate entities.

(iii) What is the challenge of managing diverse interests in democracy?

(a) Promoting political polarisation.

- (b) Ignoring minority rights.
- (c) Accommodating different viewpoints.
- (d) Restricting freedom of expression.

#### WORKSHEET (HISTORY)

#### **OBJECTIVE TYPE QUESTIONS [MCQ]**

1Question. Who was a god of valour, warfare and rain?

- a. Agni
- b. Varun
- c. Indra
- d. Soma
- 2. Question. Who were the Chandals?
- a. Brahmans
- b. Vaishyas
- c. Kshatriyas
- d. Untouchables

3. Question. i. Polyandry is the practice of a woman having several husbands.

ii. Monogamy is the practice of a man having several wives.

Which statement above is correct?

- a. (i)
- b. both
- c. (ii)
- d. None of these
- 4. Question. The critical edition of Mahabharta was prepared by:
- a. Ved Vyasa
- b. Ganesh
- c. V S Sukthankar
- d. Yudhisthara
- 5. Question. Which statement is correct?
  - i. Each gotra was named after a Vedic seer.
  - ii. Women were expected to give up their father's gotra and adopt husband on marriage.
- a. (i)
- b.(ii)
- c. both
- d. None of these

6.Question. Which one of the following was not included in varna system?

- a. Vaishya
- b. Shudras
- c. Nishad
- d. Kshatriyas

7. Question. Which of the given statement is correct?

- i. Mahabharata is a story of kinship relation.
- ii. It describes feud over land and power between two groups of cousins.
  - a. I only
  - b. II only
  - c. Both
  - d. None of them

8.Question. Which source depicts that the paternal estate was to be divided equally amongst sons after the death of parents?

- a. Dharmashastras
- b. Dharmasutras
- c. Manusmriti
- d. Upnishads

# ASSERTION AND REASON BASED MCQS

Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as.

(A) Both A and R are true and R is the correct explanation of A.

(B) Both A and R are true but R is NOT the correct explanation of A.

(C) A is true but R is false

(D) A is false and R is true.

1. Question. Assertion (A): Historians also investigate and analyse attitudes towards family and kinship.

Reason (R): It is likely that some of these ideas would have shaped people's actions, just as actions may have led to changes in attitudes.

2.Question. Assertion (A): From the fifth century BCE, Brahmanas took over the story of Mahabharata and began to commit it to writing.

Reason (R): This was the time when

chiefdoms such as those of the Kurus and around whom the story of the epic revolves, they were gradually becoming kingdoms. New kings want their itihasa to be recorded and preserved more systematically.

3. Question. Assertion (A): People of some jatis did not easily fit in the varna system.

# Reason (R): People of some jatis organised into groups called shrenis. CASE-BASED MCQS

Observe the picture and answer the following questions by choosing the correct option.



- 1. Question. What does the picture depict?
  - (A) A scene from the Mahabharata
  - (B) A scene from Jataka tales
  - (C) A scene from war of Kalinga
  - (D) None of these
- 2. Question. What is the approximate time period of this sculpture?
  - (A) Tenth century
  - (B) Twelfth century
  - (C) Fifteenth century
  - (D) Seventeenth century
- 3. Question. Where was this terracotta sculpture found?
  - (A) Maharashtra
  - (B) New Delhi
  - (C) Tamil Nadu
  - (D) West Bengal

Very Short Answer Type Questions

1.Question. What were the effects of several changes in between 600 BCE and 600 CE on societies?

2. Question. What sources are used by Historian for understanding of social changes?

3. Question. What do you understand by The critical edition of the Mahabharata"?

4. Question. What was patriliny and Matriliny?

5. Question. What do you understand of Exogamy Marriage types.

6.Question. What were the terms of gotras? What were the rules of gotras?

Short Answer Type Questions

1. Question. Mention a rules of marriage as mentioned in the early text.

2.Question. What rules did the dharma sutras and Dharma Shastra's contain about the Ideal "occupations" of the four Varna's?

3. Question. What was Jati? How are they related to Varnas?

PASSAGE BASED QUESTIONSS:

Draupadi's Marriage

Drupad the king of Panchal groined a competition where the challenges were to string a bow and hit target: the winner would be chosen to marry his daughter Draupadi. Arjuna was victorious and was garlanded by Draupadi. The Pandavas returned with her to their mother Kunti, who, even before she was saw them to share whatever they had got she realized mistake when shesaw Draupadi. But her command could not be violated. After much deliberation, Yudhisthira decided that Draupadi would be their common wife.

When Drupad was told about this, he protested. However, the seer Vyasa arrived and told him that the Pandavas were in reality incarnations of Indra. Whose wife had been reborn as Draupadi mand they were thus destined for each other?

Vyasa added that in another instance a young woman had prayed to Shiva for a husband. And in her enthusiasm, had prayed five times instead of once. This women was known reborned as Draupadi and Shiva had fulfilled her desire convinced by these stories, Drupada consented to marriage.

1.Question. What was the competition organized by the Panchala king Drupada for the marriage of his daughter?

2.Question. What two explanations were given by Vyasa to convince king Drupada for Draupadi being the common wife of the Pandvas?

3.Question. What form of the marriage was Draupadi's marriage to the Pandvas? Give two views of historians about the form of marriage.

#### BIOLOGY

# INVESTIGATORY PROJECT- BIOLOGY

#### : Instructions

• There are 4 topics and you need do the project on any one

topic

- You have to submit the project in your own handwriting.
- Word limit: 1000 words max.

The Project-Portfolio should include the following:

- Cover page with the title of the project, school details/details of students
- Statement of purpose/objectives/goals
- Acknowledgement
- Certificate of Completion under the guidance of the teacher.
- Index/Table of Contents
- Body (1000 words Introduction, Description/Report/Explanation, Conclusion)
- If possible, photographs that capture the positive learning experiences of the student(s).
- List of resources/ Bibliography.

## **TOPICS:**

1.DNA Fingerprinting.

- 2. Mendelian Disorders and Chromosomal Disorders.
- 3. AB Blood Group.
- 4.Biomimcry / Bio imitation.

#### **WORKSHEET**

#### **Ch. 1 Reproduction in Flowering Plant**

1. Assertion (A): Although geitonogamy is functionally cross-pollination involving a pollinating agent, genetically it is similar to autogamy since the pollen grains come from the same parent.

Reason (R): In geitonogamy, pollen grains from the anthers of one flower are transferred to the stigma of another flower borne on the same plant.

(a). Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b). Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c), Assertion (A) is true but reason (R) is false.

(d). Assertion (A) is false but reason (R) is true.

2. Assertion (A): Seed is the final product of sexual reproduction in angiosperms.

Reason (R): A seed typically bears seed coat, cotyledons and an embryo axis.

(a). Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

(b). Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

(c), Assertion (A) is true but reason (R) is false.

(d). Assertion (A) is false but reason (R) is true.

- 3. A student wants to know the ploidy of coconut. After studying its different parts, he inferred the ploidy of the following parts. Check whether the student is correct. If not, correct them.
- a .Water inside the fruit n
- b. White Kernal 2n
- c. Seed coat n
- d.Embryo- 3n
- e. Tepal 2n

4. Which kind of embryo is shown in the figure below:



- a. Heart shaped embryo
- b. Globular embryo
- c. Mature embryo
- d. Pre-embryo
- 5. Both chasmogamous and cleistogamous flowers are present in
  - a. Helianthus
  - b. Camelina
  - c. Rosa
  - d. Gossypium

6, Growth of pollen tube towards embryo sac is

- a. chemotropic
- b. thigmotaxis
- c. geotropic
- d. of these
- 7. During microsporogenesis, meiosis occurs in
  - a. endothecium

b. microspore mother cells

c. microspore tetrads

d. pollen grains

8...Identify the parts labelled as A, B, C and D in the given figure and select the correct option.



a. A - Chalaza, B - Female gametophyte, C - Embryo sac, D - Micropyle

b A - Chalaza, B - Nucellus, C - Embryo sac, D - Micropyle

c A - Micropyle, B - Egg, C - Embryo sac, D - Chalaza

d A - Micropyle, B - Nucellus, C - Embryo sac, D - Chalaza

9. Write 02 differences between Parthenogenesis and Parthenocarpy in Plants.

10. Write the significance of Pollination.

11. How is Pollination affected in Vallisneria?

12 Why is Autogamy discouraged in Plants?

13. What is Pericarp? Write 02 of its functions.

14. Trace the development of Megaspore mother cell of a flower into a Mature

Ovule. Draw a labelled diagram of the final stage.

15, Explain the post-Pollination events leading to seed production in Angiosperm.

Ch.2 Human reproduction

# Question No. 1 to 6 are based on the given text. Read the text carefully and answer the questions:

During copulation, semen is released by the penis into the vagina. The motile sperms swim rapidly, fuse with ovum in the ampullary region, resulting in fertilisation. Haploid nucleus of sperm fuse with that of ovum to form a diploid zygote.

- 1. In female genital tract, sperms are made capable of fertilising the egg. This phenomenon of sperm activation is called
  - a. acrosomal reaction
  - b. cortical reaction
  - c. capacitation
  - d. amphimixis

- 2. Select the correct sequence of various physical and chemical events that take place during fertilisation.
  - P. Fusion of cortical granules with plasma membrane of secondary oocyte.
  - Q. Formation of fertilisation cone to receive sperm.
  - R. Release of sperm lysin from acrosome.
  - S. Mixing up of chromosomes of a sperm and an ovum.
    - a.  $R \rightarrow P \rightarrow Q \rightarrow S$

b. Q  $\rightarrow$  S  $\rightarrow$  R  $\rightarrow$  P

- c.  $Q \rightarrow R \rightarrow S \rightarrow P$
- d.  $R \rightarrow Q \rightarrow P \rightarrow S$
- 3. Assertion (A): Only one sperm can fertilise an ovum.

**Reason** (**R**): The secretion of acrosome helps the sperm to enter into cytoplasm of ovum through zona pellucida and plasma membrane.

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is not the correct explanation of A.
- c. A is true but R is false.
- d. A is false but R is true.
- 4. What is the significance of fertilisation?
  - a. Both it produces offspring genetically identical to parents and it initiates cleavage.
  - b. It produces offspring genetically identical to parents.
  - c. It initiates cleavage.
  - d. It restores haploid number of chromosomes.
- 5. Site of fertilisation in humans is
  - a. ampullary isthmic junction of oviduct
  - b. endometrium of uterine cavity
  - c. cervix of uterus
  - d. infundibulum of fallopian tube.
- 6. Out of A, B and C which sperm have a greater chance of fertilization?



- a. C
- b. B and C
- c. A
- d. B

- 7. How many statements are correct with respect to corpus luteum?
  - A. It is generated after surge of LH.
  - B. In a pregnant woman, it is maintained by LH during early pregnancy.
  - C. Its degeneration is responsible for menstrual bleeding.
  - D. It releases pregnancy maintaining hormone.
  - a. 4
  - b. 2
  - c. 3
  - d. 1
- 8. Mobility of mature sperm is controlled by mitochondria present in:
  - a. Tail
  - b. Head
  - c. All of these
  - d. Middle piece

Assertion (A): In the morula stage, the cells divide without any increase in size.
 Reason (R): Zona pellucida remains intact till cleavage is completed.

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is not the correct explanation of A.
- c. A is true but R is false.
- d. A is false but R is true.
- 10.Assertion (A): In human males, testis are extra-abdominal and lie in scrotal sacs.Reason (R): Scrotum acts as a thermoregulator and keeps the testicular temperature lower by 2°C for normal spermatogenesis.
  - a. Both A and R are true and R is the correct explanation of A.
  - b. Both A and R are true but R is not the correct explanation of A.
  - c. A is true but R is false.
  - d. A is false but R is true.
- 11.State True or False:
  - i. Inner cell mass contains stem cells which have the potency to give rise to all the tissues is called parturition.
    - a. True
    - b. False
  - ii. Foetal ejection reflex triggers the release of oxytocin from maternal pituitary.
    - a. True
    - b. False

12.Fill in the blanks:

a. \_\_\_\_\_ cells provide nutrition to the germ cells.

- b. Ovulation is induced by a hormone called \_\_\_\_\_.
- 13. Where are fimbriae present in a human female reproductive system? Give their function.
- 14.Explain the term implantation. After which event does it take place?
- 15. What is colostrum's? How is milk production hormonally regulated? From which germ layers do the following organs differentiate
  - (a) Kidney
  - (b) Urinary bladder

16.Draw a labelled diagrammatic sectional view of a human seminiferous tubule.

- 17.
- i. Briefly explain the events of fertilisation and implantation in an adult human female.
- ii. How does implantation lead to pregnancy?

18.Explain two accessory glands in human Male Reproductive system.

19.Describe the role of Pituitary and Ovarian hormones during the Menstrual cycle in human?

20.State the role of oxytocin in parturition. What triggers its release from the Pituitary?

Ch3: Reproductive health in Humans

# 1. Question No. 1 to 6 are based on the given text. Read the text carefully and answer the questions:

Medical termination of pregnancy is the termination of pregnancy before the foetus becomes viable. To reduce the incidence of illegal abortion and consequent maternal mortality, the MTP Amendment Act, 2017 was enacted by the government of India. About 40-50 million MTPs are done in a year all over the world.

1. Abortion can be safely done for about \_\_\_\_\_\_ weeks of pregnancy.

- a. 4
- b. 8-10
- c. 12
- d. 15-18
- 2. How is MTP helpful in decreasing human population?
  - a. By increasing maternal mortality rate
  - b. None of these
  - c. By aborting normal female foetus
  - d. By getting rid of unwanted pregnancies
- 3. Select an incorrect statement for MTP.
  - a. It helps to get rid of unwanted pregnancies.
  - b. Second trimester abortions are riskier than first trimester.
  - c. It is being misused to abort normal female foetus.

- d. Child detected with congenital heart disease cannot be aborted.
- 4. MTP was legalised by Government of India in
  - a. 1982
  - b. 1973
  - c. 1971
  - d. 1991
- Assertion (A): MTPs are safe during first trimester of pregnancy.
   Reason (R): After first trimester, foetus become intimately associated with the maternal tissues.
  - a. Both A and R are true and R is the correct explanation of A.
  - b. Both A and R are true but R is not the correct explanation of A.
  - c. A is true but R is false.
  - d. A is false but R is true.
- 6. MTPs are also essential in certain cases which of the following statement justify this statement:
  - i. In conditions where continuation of the pregnancy could be harmful.
  - ii. In indiscriminate and illegal female foeticides.
  - iii. misuse of amniocentesis to determine the sex of the unborn child.
    - a. all of these
    - b. only i
    - c. only iii
    - d. only ii
- 7. What is the main reason for decreased maternal and infant mortality rates?
  - a. Increased number of couples with small families
  - b. Improved reproductive health of the society
  - c. Increased number of medically assisted deliveries and better post-natal care
  - d. Better detection and cure of STDs
- 8. Assisted reproductive technology, IVF involves transfer of:
  - a. Embryo with 16 blastomeres into the fallopian tube
  - b. Ovum into the fallopian tube
  - c. Zygote into the fallopian tube
  - d. Zygote into the uterus
- 9. Assertion (A): Embryos formed by in-vitro fertilization is used for embryo transfer in test tube baby program.

Reason (R): Such transfer to assist those females who cannot conceive.

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is not the correct explanation of A.

- c. A is true but R is false.
- d. A is false but R is true.

10.Assertion (A): STD diseases or infections transmitted through sexual intercourse.Reason (R): Sexual intercourse with infected unknown/multiple partners.

- a. Both A and R are true and R is the correct explanation of A.
- b. Both A and R are true but R is not the correct explanation of A.
- c. A is true but R is false.
- d. A is false but R is true.
- 11.State True or False:
  - i. Vasectomy is a surgical procedure where vas deferens cut and tied up to prevent conception.
    - a. True
    - b. False
  - ii. Zygote is collected from a female donor and transferred to the fallopian tube is called GIFT.
    - a. True

#### **BUSINESS STUDIES**

#### CASE STUDY OF A RETAIL STORE

#### (like big Bazar, D-mart,or a local departmental store)

**Topic**:- Application of Principles of Management in a Retail Store – A Case Study of D-Mart **Index** 

#### Index

- 1. Introduction
- 2. Objectives of the Study
- 3. Research Methodology
- 4. Company Profile D-Mart
- 5. Application of Fayol's Principles
- 6. Application of Taylor's Principles
- 7. Key Observations
- 8. Suggestions for Improvement
- 9. Conclusion
- 10 .Bibliography.
- 11. Appendix

#### 1. Introduction

Brief about the importance of management principles in retail.

Introduction to Fayol and Taylor.

#### 2. Objectives

To study how retail operations are managed.

To relate theory to real-world retail practices.

#### 3. Research Methodology

Store visit, interviews with manager/staff, online sources.

## 4. Company Profile

History of D-Mart (or another store).

Product categories, organizational structure, customer base.

# 5. Fayol's Principles in Use

Examples:

Division of Work: Separate sections for billing, stocking, security.

Authority and Responsibility: Department heads given clear tasks.

Unity of Command: Employees report to one supervisor.

Order: Shelves arranged logically.

Equity: Staff treated fairly.

## 6. Taylor's Scientific Management in Use

Examples:

Method Study: Standardized shelving and billing practices.

Time Study: Quick checkout counters.

Functional Foremanship: Different supervisors for inventory, billing, etc.

## 7. Key Observations

Efficient operations and coordination.

Real-time inventory tracking.

Training of staff improves customer service.

#### 8. Suggestions for Improvement

More cash counters during peak hours.

Better layout signage.

#### 9. Conclusion

Management principles are crucial for smooth functioning and customer satisfaction.

# 10. Bibliography

Websites, interviews, articles.

# 11. Appendix

Photos of store layout (if permitted), charts, interview notes.

# **WORKSHEET**

Q1. State any three features of business environment.? (3) ( CBSE2024 )

Q2. State any three features of 'Demonetizations '? (3) (CBSE 2024)

Q3.State any four characteristic of management.? (4) (CBSE 2024)

Q4. Explain the following techniques of scientific management.? (6) ( CBSE 2024)(a) Time Study

(b) Differential peice wage system

(c) Motion Study.

Q5. Explain the following features of principles of management? ( 6) (CBSE 2024)

- (a) General guidelines
- (b) Mainly behavioural
- (c) Formed by practice and experimentation.

Q6.Explain the following principles of management.? (6) ( CBSE 2023)

- (a) Unity of direction
- (b) Esprit de corps
- (c) Subordination of individual interest to General interest.

Q7. Explain the following characteristic of principles of management (6) ( CBSE 2023)

- (a) General guidelines
- (b) Flexible
- (c) Cause and effect Relationship.
- Q8. Explain the following principles Of management.? (6) ( CBSE 2023)
  - (a) Discipline
  - (b) Unity of command
  - (c) Unity of direction.
- Q9. Explain the following principles of scientific management. (6) ( CBSE 2023)
  - (a) Harmony, not discord
  - (b) Science, not Rule of thumb
- Q10. Explain the following principles of management. (6) (CBSE 2023)
  - (a) Equity
  - (b) Authority and responsibility
  - (c) Stability of personnel.
- Q11. Explain the functions of operational Level management. (4) (CBSE 2023)
- Q12. Management is an art and science both .Comment on it .? (4) (CBSE 2023)

Q13. Explain why management is important to any organisation.? (6) ( CBSE 2024)

#### ACCOUNTANCY

# **PROJECT WORK**

# CASE STUDY:-

A, B and C are partners in a firm. Their capital balances as on 1st April 2024 are as follows:

A – ₹5,00,000

B – ₹3,00,000

C – ₹2,00,000

Their Profit-Sharing Ratio is 3:2:1. As per the partnership deed, the terms are:

- 1. Interest on capital @ 10% p.a.
- 2. Interest on drawings @ 5% p.a
- 3. B is entitled to a monthly salary of ₹10,000.

4. C is guaranteed a minimum profit of  $\gtrless$ 1,20,000. Deficiency to be borne by A and B in the ratio of 3:2.

- 5. A withdrew ₹60,000 on 1st October 2024
- 6. B withdrew ₹36,000 on 1st July 2024
- 7. C withdrew ₹24,000 on 1st January 2025

The firm earned a net profit of  $\gtrless$ 6,00,000 for the year ending 31st March 2025, before charging above appropriations.

You are required to:

Prepare the Profit & Loss Appropriation Account ,partner's capital account, partner's current account.

# **Project Topic :-**

Accounting for Partnership Firms – Fundamentals.

# **Objective**:-

To understand and apply the basic accounting principles related to the formation and operation of a partnership firm.

# Index:-

- 1. Introduction to Partnership
- 2. Features of Partnership
- 3. Partnership Deed
- 4. Profit Sharing Ratios
- 5. Interest on Capital
- 6. Interest on Drawings
- 7. Salary and Commission to Partners.
- 8. profit and loss appropriation Account.
- 9.capital and current account.
- 10. Past Adjustments
- 11. Guarantee of Profits
- 12. Conclusion

# 1. Introduction:-

A partnership is a form of business in which two or more individuals manage and operate a business in accordance with the terms and objectives set out in the Partnership Deed.

# 2. Features of Partnership:-

Mutual Agency

Risk Sharing

Agreement-Based

Unlimited Liability

**Decision Making Together** 

3.Partnership Deed :-

- 4. profit sharing ratio:-
- 5.Interest on capital:-
- 6. Interest on Drawings :-
- 7.salary commission and bonus :-

8. Profit and Loss Appropriation Account:

9.capital and current account.

- 10. Past Adjustments.
- 11. Guarantee of Profits :-

# 12. Conclusion:-

This project helped understand practical concepts in partnership such as interest, capital accounting, and appropriation of profit. It lays a strong foundation for more complex partnership scenarios.

## **Question:-**

- 1. What is a partnership deed?
- 2. How is interest on drawings calculated?
- 3. What's the difference between fixed and fluctuating capital?
- 4. What happens if there's no partnership deed?
- 5. How is profit shared if the ratio is not given in partnership deed?

# **WORKSHEET**

# QUESTION 1:-( CBSE 2024)

Assertion (A) : In a partnership firm, at the time of admission, the new partner brings in an

agreed amount of capital either in cash or in kind.

Reason (R) : In a partnership firm, at the time of admission, the new partner acquires the right to

share the assets and the profits of the partnership firm.

Choose the correct option from the following :

(A) Both Assertion (A) and Reason (R) are correct and Reason (R) is

the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are correct, but Reason (R) is

not the correct explanation of Assertion (A).

(C) Assertion (A) is incorrect, but Reason (R) is correct.

(D) Assertion (A) is correct, but Reason (R) is incorrect.

#### Question 2:-( CBSE2024 )

Pearl and Ruby were partners in a firm with a combined capital of 2,50,000. The normal rate of

return was 10%. The profits of the last four years were as follows :

2019-20 35,000

2020 - 21 25,000

2021 - 22 32,000

2022-23 33,000

The closing stock for the year 2022 -23 was overvalued by 5,000.

Calculate goodwill of the firm based on the three years purchase of the last four years average

super profit.

Question 3:-( CBSE 2024)

Rohan, Suhaan and Adit were partners in a firm sharing profits and losses in the ratio of 3 :2 : 1. Their fixed capitals were : 2,00,000, 1,00,000 and 1,00,000 respectively. For the year ended 31st March, 2023, interest on capital was credited to their accounts @ 8% p.a. instead of 5% p.a.

Pass necessary adjusting journal entry. Show your workings clearly.

## Question 4:-( CBSE2024 )

Manoj and Nitin were partners in a firm sharing profits and losses in the ratio of 2 : 1. On 31st March, 2023, the balances in their capital accounts after making adjustments for profits and drawings were 90,000and 80,000 respectively. The net profit

for the year ended 31st March, 2023 amounted to 30,000. During the year Manoj withdrew 40,000 and Nitin withdrew 20,000. Subsequently, it was noticed that Interest on Capital @ 10% p.a. was not provided to the partners. Also Interest on Drawings to Manoj 3,000 and to Nitin 2,000 was not charged.

Pass necessary adjusting journal entry. Show your workings clearly.

# Question 5:- (CBSE 2024)

Abhay, Boris and Chetan were partners in a firm sharing profits in the ratio of 5 :3 : 2. Boris was guaranteed a profit of 95,000. Any deficiency on account of this was to be borne by Abhay and Chetan equally. The

firm earned a profit of 2,00,000 for the year ended 31st March, 2023.

The amount given by Abhay to Boris as guaranteed amount will be :- (A) 17,500 (B) 35,000 (C) 25,000 (D) 10,000

# (C) 25,000 (D) 10,000

## Question:-6 (CBSE 2025)

Parul and Rajul were partners in a firm, sharing profits and losses in the ratio of 5:3. The balance in their fixed capital accounts on 1st April, 2023 were: Parul ₹6,00,000 and Rajul ₹8,00,000. The partnership deed provided for allowing interest on capital at 12% per annum. The net profit of the firm for the year ended 31st March, 2024 was ₹1,26,000.

Prepare the Profit and Loss Appropriation Account for the year ended 31st March, 2024.

## Question:-7 (CBSE2023)

Amay, Anmol, and Rohan entered into partnership on 1st July, 2021 to share profits and losses

in the ratio of 3:2:1. Amay guaranteed that Rohan's share of profit after charging interest on

capital @ 6% p.a. would not be less than ₹36,000 p.a. Their fixed capital balances are:

₹2,00,000, ₹1,00,000, and ₹1,00,000 respectively. Profit for the year ended 31st March, 2022

was ₹1,38,000.

Prepare the Profit and Loss Appropriation Account.

#### **Question 8 :- ( CBSE 2021)**

The goodwill of a firm was to be valued at two years' purchase of the average profits of the last

three years. The profits were as under:

2014 – 15: Rs. 20,000 (including an abnormal gain of Rs. 5,000)

2015 - 16: Rs. 40,000 (after charging an abnormal loss of Rs. 10,000)

2016 - 17: Rs. 40,000

Calculate the amount of goodwill ?

#### Question 9:-( CBSE2014 )

Satnam, Qureshi, and Juliee were partners. The profit of the firm for the year ended 31st March,

2013 was ₹3,37,800.

Additional Information:

Interest on Capital: Satnam ₹25,500; Qureshi ₹12,300

Prepare the Profit and Loss Appropriation Account for the year ending 31st March,2013

#### Question 10:-( CBSE 2023)

Assertion (A): If the partnership deed is silent about the interest on partner's capital, then

interest is not allowed to be credited to the partner's capital account.

Reason (R): In the absence of a partnership deed, profits and losses are shared equally by the

partners, and interest on capital is not a standard provision in such cases.

(a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of

Assertion (A).

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion (A) is false, but Reason (R) is true.

#### MATHEMATICS

Instructions for Project file :

- 1. Select any one topic from the list
- 2. Project file should contain- Index, Acknowledgement, Certificate, Introduction, Real life application, Concepts, Historical note, Bibliography.
  - (a) Application of derivatives
  - (b) Application of integrals
  - (c) 3-D geometry
  - (d) Matrices
  - (e) Probability

#### **WORKSHEET**

#### CHAPTER- INVERSE TRIGONOMETRIC FUNCTIONS

Q1- Find the principal value of the following :-

(a) 
$$\tan^{-1}(-\sqrt{3})$$
  
(b)  $\cos^{-1}(-\frac{1}{\sqrt{2}})$   
(c)  $\cot^{-1}(-\frac{1}{\sqrt{3}})$   
(d)  $\cot^{-1}(-\sqrt{3})$ 

Q2- Find the value of  $\cos^{-1}\left(\frac{1}{2}\right) + 2\sin^{-1}\left(\frac{1}{2}\right)$ 

Q3- Evaluate :cos 
$$\left\{ \cos^{-1} \left( -\frac{\sqrt{3}}{2} \right) + \frac{\pi}{6} \right\}$$

Q4- Find the value of :

(a) 
$$\sin^{-1}\left(\sin\frac{2\pi}{3}\right)$$
  
(b)  $\cos^{-1}\left(\cos\frac{7\pi}{6}\right)$ 

(c) 
$$\tan^{-1} \left( \tan \frac{3\pi}{4} \right)$$
  
(d)  $\sin^{-1} \left( \sin \frac{3\pi}{5} \right)$   
(c)  $\cos^{-1} \left( \cos \frac{13\pi}{5} \right)$   
(f)  $\tan^{-1} \left( \tan \frac{7\pi}{c} \right)$   
Q5- Solve  $\tan^{-1} \left( \frac{x-1}{x-2} \right) + \tan^{-1} \left( \frac{x+1}{x+2} \right) = \frac{\pi}{4}$   
Q6- Prove that  $\tan^{-1} \left( \sqrt{\frac{1-\cos x}{1+\cos x}} \right) = \frac{x}{2}$   
Q7- Prove that  $\tan^{-1} \left( \frac{\cos x + \sin x}{\sqrt{1+\sin x}} \right) = \left( \frac{\pi}{4} - x \right)$   
Q8- Prove that  $\cot^{-1} \left\{ \frac{\sqrt{1+\sin x} + \sqrt{1-\sin x}}{\sqrt{1+\sin x} - \sqrt{1-\sin x}} \right\} = \frac{x}{2}$   
Q9- Prove that  $\tan^{-1} \sqrt{x} = \frac{1}{2} \cos^{-1} \left( \frac{1-x}{1+x} \right)$   
Q10- Differentiate w.r.t x :  
(a)  $\sin x^{3}$   
(b)  $\cos^{3} x$   
(c)  $\tan \sqrt{x}$   
(d)  $(2x + 3)^{5}$   
(e)  $\sqrt{ax^{2} + 2bx + c}$   
(f)  $\sin 3x \cos 5x$   
(g)  $\sqrt{\frac{1-\tan x}{1+\tan x}}$   
(h)  $\frac{1}{\sqrt{1-x^{2}x^{2}}}$   
(i)  $\cos^{2} x^{2}$   
(j)  $\sin(\sqrt{x}x^{2})$   
(k)  $\sin(\sqrt{\sin x + \cos x})$   
(l)  $\sin(\sqrt{\sin \sqrt{x}})$   
(m)  $\frac{5x}{(1-x^{2})^{3}} + \sin^{2}(2x + 3)$   
(m)  $2\cos (3x \sqrt{x} + b)$   
(g)  $\cos(\sin \sqrt{\alpha x + b})$   
Q11.  $A = \begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & 1 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 5 & -3 & 1 \end{bmatrix}$ , Find AB. Hence, find the solution for the following linear equations  $x - y + z = 4$ ;  $x - 2y - 2z = 9$ ;  $2x + y + 3z = 1$ 

Q12. If  $A = \begin{bmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{bmatrix}$ , find  $A^{-1}$ . Hence, solve the equations x + 2y = 10; -2x - y - 2z = 8; -y + z = 7Q13- if  $A = \begin{bmatrix} -1 & a & 2 \\ 1 & 2 & x \\ 3 & 1 & 1 \end{bmatrix}$  and  $A^{-1} = \begin{bmatrix} 1 & -1 & 1 \\ 8 & 7 & -5 \\ 6 & Y & 3 \end{bmatrix}$ , find the value of (a+x)-(b+y). Q14. If  $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ , show that  $A^2 - 5A + 7I = 0$ . Hence find  $A^{-1}$ Q15. If  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & y & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ -1 \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \\ 1 \end{bmatrix}$ , find x + y + z Q16. If  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & x \\ -2 & 2 & -1 \end{bmatrix}$  is matrix satisfying AA' = 9I, find x.

Q17. In a city there are two factories A and B. each factory produces sports clothes for boys and girls. There are three types of clothes produced in both the factories type I, type II and type III. For boys, the number of units of types I, II and III respectively are 80, 70 and 65 in factory A and 85, 65 and 72 are in factory B. For girls the number of units of types I, II and III respectively are 80, 75, 90 in factory A and 50, 55, 80 are in factory B. Answer the following questions :

- (a) Write the matrix P, if P represents the matrix of number of units of each type produced by factory A for both boys and girls.
- (b) Write the matrix Q, if Q represents the matrix of number of units of each produced by factory B for both boys and girls.
- (c) Find the total production of sports clothes of each type of boys. OR Find the total production of sports clothes of each type of girls.

#### **PSYCHOLOGY**

#### Part A: NCERT Questions Review

#### **Instructions: MAKE NOTES**

Stress Management (Chapter: Meeting Life Challenges)

- **Personality** (Chapter: Self and Personality)
- Abnormal Psychology (Chapter: Psychological Disorders)
- Therapeutic Techniques (Chapter: Therapeutic Approaches)

Use your textbook and classroom notes for reference. Answers must be written **neatly** and in your own handwriting.

Part B: Project Work

**Topic Suggestion:** 

"Understanding Depression: Causes, Symptoms, and Treatment Approaches"This
project explores Major Depressive Disorder (MDD) and other disorders—most
common psychological disorders. It aims to spread awareness about its symptoms,
causes, and the effectiveness of various treatment methods.

## Part C: Case Study Analysis

#### **Instructions:**

- Select **1–2 case studies** involving:
  - A psychological disorder (e.g., Depression, OCD, Phobia, Schizophrenia)
  - OR a therapeutic intervention (e.g., CBT, Psychoanalysis, Humanistic therapy)

#### Format:

- 1. Brief description of the case
- 2. Diagnosis (based on symptoms)
- 3. Suggested therapy and treatment plan
- 4. Theoretical explanation (link to DSM/ICD or textbook theories)
- 5. Personal reflection

#### **WORKSHEET**

#### Chapters:

Ch. 1 – Variations in Psychological Attributes Ch. 2 – Self and Personality

Section A – MCQs

- 1. Which of the following best exemplifies fluid intelligence?
  - a) Recalling multiplication tables
  - b) Solving a novel puzzle
  - c) Remembering historical facts
  - d) Reciting poetry
- 2. Cattell's 16 PF test is based on which of the following personality models?
  - a) Type theory
  - b) Trait theory
  - c) Humanistic theory
  - d) Psychodynamic theory
- **3**. Identify the correct match:
  - a) Gardner Analytical Intelligence

- b) Sternberg Linguistic Intelligence
- c) Spearman G factor
- d) Binet Emotional Quotient
- 4. 'Congruence between real and ideal self' is central to which personality theorist?
  - a) Erikson
  - b) Rogers
  - c) Bandura
  - d) Maslow
- 5. Projective techniques are based on the assumption that:
  - a) Personality traits are fixed
  - b) Behaviour is genetically programmed
  - c) Unstructured stimuli reveal unconscious motives
  - d) Self-report methods are always biased

#### Section B –

- 6. Differentiate between aptitude and intelligence with suitable examples.
- 7. Define self-efficacy and explain its relevance in student life.
- 8. Mention any two limitations of self-report personality inventories.
- 9. What is the role of culture in shaping intelligence?

#### Section C --

- 10. Explain Sternberg's triarchic theory of intelligence with appropriate examples.
- 11. Describe any three defense mechanisms proposed by Freud.
- 12. Discuss the structure of personality as per the psychoanalytic perspective.

# Section D –

(Answer in 120–150 words)

- **13**. Elaborate upon the psychometric approach to intelligence. Compare it with the information-processing approach.
- 14. Discuss the trait and type approaches to personality, highlighting the contributions of Allport and Eysenck.

Section E - Case-Based Question

Read the following case and answer the questions:

15. Amit is a bright student known for original thinking and problem-solving skills. His teachers note that he shows high interpersonal sensitivity, easily collaborates in teams, and often resolves peer conflicts effectively. However, he scores moderately in conventional IQ tests. He recently created a mobile app that helps students organize their tasks.

a) Identify and define two types of intelligence exhibited by Amit as per Gardner.b) How does his case highlight the limitations of traditional IQ testing? (2)c) Suggest an alternative assessment method better suited for his abilities. Justify.

d) How would you relate Amit's behaviour to Bandura's concept of reciprocal determinism?

Certainly! Here's an additional section for the worksheet that includes a movie-based psychological analysis task, focusing on the concepts from Chapters 1 and 2 (intelligence, personality, self-concept, etc.).

16. Section F – Movie Analysis

Watch any one of the following films and analyze the psychological attributes of the central character based on Chapters 1 and 2 of your Psychology textbook:

Suggested Films (Choose any one):

a) Good Will Hunting (1997)

- b) Taare Zameen Par (2007)
- c) The Pursuit of Happiness (2006)

d) Inside Out (2015 – animated, suitable for emotional intelligence analysis)

Guidelines for Analysis (Word limit: 250–300 words)

Prepare a short write-up addressing the following:

- 1. Brief description of the protagonist and his/her challenges.
- 2. Identify and explain the type(s) of intelligence displayed using relevant theory (e.g., Gardner, Sternberg).
- 3. Analyze the personality of the character using any one theoretical approach (e.g., Trait, Humanistic, Psychodynamic).
- 4. How do concepts such as self-efficacy, emotional intelligence, or self-concept apply to the character?
- 5. Conclude by reflecting on how this character's journey relates to real-life psychological development.

#### PHYSICS

#### Assignment

	Section A	
1	Two identical charged spheres suspended from a common point by two massless	[1]

	strings of lengths l, are initially at a distance $d(d << l)$ apart because of their mutual	
	repulsion. The charges begin to leak from both the spheres at a constant rate. As a result, the spheres approach each other with a velocity v. Then v varies as a function of the distance x between the spheres, as	
	a) v $\propto x^{-\frac{1}{2}}$	
	b) v $\propto x^{-1}$	
	c) v∝ x	
	d) v $\propto x^{\frac{1}{2}}$	
2	A charged sphere of radius r has surface charge density. The electric field on its surface is E. If the radius of the sphere is doubled, keeping charge density the same, the ratio of the electric field on the old sphere to that on the new sphere will be:	[1]
	a) 1	
	b) $\frac{1}{4}$	
	c) 4	
	d) $\frac{1}{2}$	
3	A hollow conducting sphere is given a positive charge of $10\mu$ C. What will be the electric field at the centre of the sphere if its radius is 2 metres?	[1]
	a) 20µ C	
	$m^{-2}$	
	b) $32\mu$ Cm $^{-2}$	
	c) $5\mu$ Cm $^{-2}$	
	d) Zero	
4	Point charges +4q, - q and +4q are kept on the X - axis at points $x = 0$ , $x = a$ and $x = 2a$ respectively:	[1]
	a) all the charges are in unstable equilibrium	
	b) all the charges are in stable equilibrium	
	c) none of the charges is in equilibrium	
	d) only - q is in stable equilibrium	
5	An isolated conductor, with a cavity, has a net charge +Q. A point charge +q is inside the cavity. The charges on the cavity wall and the outer surface are respectively:	[1]
<u> </u>	1	<u> </u>

	a) 0 and Q	
	b) - q and Q - q	
	c) 0 and Q - q	
	d) - q and Q + q	
6	Two charges + $5\mu$ C and +10 $\mu$ C are placed 20 cm apart. The electric field at the midpoint between the two charges is	[1]
	a) $4.5 \times 10^{6}$ N/C towards + 10 $\mu$ C	
	b) 4.5× 10 <sup>6</sup> N/C towards + 5 $\mu$ C	
	c) $13.5 \times 10^{6}$ N/C towards + 10 $\mu$ C	
	d) 13.5× 10 <sup>6</sup> N/C towards + 5 $\mu$ C	
7	A force of repulsion between two point charges is F, when these are at a distance 0.1 m apart. Now the point charges are replaced by conducting spheres of radii 5 cm each having the same charge as that of the respective point charges. The distance between their centres is again kept 0.1 m, then the force of repulsion will:	[1]
	a) remain F	
	b) decrease	
	c) increase	
	d) becomes $\frac{10F}{9}$	
8	Two infinite plane parallel non conducting sheets, separated by a distance d have equal and opposite charge densities $\sigma$ . Electric field intensity at a point between the sheets is:	[1]
	a) depends upon location of the point	
	b) $\frac{\sigma}{2\varepsilon_0}$	
	c) zero	
	d) $\frac{\sigma}{\varepsilon_0}$	
9	If a positive charge is displaced against the electric field in which it was situated, then	[1]
	a) the intensity of the electric field decreases	
	b) work will be done by the electric field on the charge	
	c) energy of the system will decrease	

	d) energy will be provided by external source displacing the charge	
10	The torque acting on electric dipole of the dipole moment $\vec{p}$ placed in a uniform electric field $\vec{E}$ is	[1]
	a) $\overrightarrow{p} \cdot \overrightarrow{E}$	
	b) $\overrightarrow{p} \times \left( \overrightarrow{E} \times \overrightarrow{p} \right)$	
	c) $\frac{\vec{E}\cdot\vec{p}}{p^2}$	
	d) $\overrightarrow{p} \times \overrightarrow{E}$	
11	The capacity of a condenser is $4 \times 10^{-6}$ farad and its potential is 100 volts. The energy released on discharging it fully will be:	[1]
	a) 0.025 J	
	b) 0.05 J	
	c) 0.04 J	
	d) 0.02 J	
12	0.2 F capacitor is charged to 600 V by a battery, on removing the battery, it is connected with another parallel plate condenser of 1 F. the potential decreases to:	[1]
	a) 300 V	
	b) 100 V	
	c) 600 V	
	d) 120 V	
13	A parallel plate capacitor is charged to V volt by a battery. The battery is disconnected and the separation between the plates is halved. The new potential difference across the capacitor will be	[1]
	a) $\frac{V}{2}$	
	b) 2V	
	c) V	
	d) $\frac{V}{4}$	
14	Electric potential V at any point x, y, z in space is given by $V = 6z^2$ . The value of the electric field at the point (2, -1, 3) is	[1]
	a) - 36	
	b) 24	

	c) - 12	
	d) 12	
15	Two parallel plate capacitors of capacitances C and 2C are connected in parallel and charged to a potential difference V by a battery. The battery is then disconnected and the space between the plates of capacitor C is completely filled with a material of dielectric constant $K = 3$ . The potential difference across the capacitors now becomes	[1]
	a) $\frac{2V}{5}$	
	b) $\frac{3V}{6}$	
	c) $\frac{V}{4}$	
	d) $\frac{3V}{5}$	
16	Two identical parallel - plate capacitors are connected in parallel and joined to a 6 - V battery. The battery is then disconnected and the two capacitors are joined in series, as shown. The potential difference between the mints A and B is	[1]
	a) 24 V	
	b) 3 V	
	c) 6 V	
	d) 12V	
17	The electric potential at the surface of an atomic nucleus (Z = 50) of radius 9.0× 10 $^{-13}$ cm is:	[1]
	a) 8× 10 <sup>6</sup> volt	
	b) $9 \times 10^{6}$ volt	
	c) 80 volt	
	d) 9 volt	
18	The net charge on a capacitor is	[1]
	a) +q	
	b) zero	
	c) - q	
	l	<u> </u>

	d) 2q	
19	Two charges $q_1$ and $q_2$ are placed at the centres of two spherical conducting shells of radius $r_1$ and $r_2$ respectively. The shells are arranged such that their centres are $d [> (r_1 + r_2)]$ distance apart. The force on $q_2$ due to $q_1$ is: a) $\frac{1}{4\pi\varepsilon_0} \frac{q_1q_2}{d^2}$	[1]
	b) $\frac{1}{4\pi\varepsilon_0} \frac{q_1 q_2}{(d-r_1)^2}$ c) $\frac{1}{4\pi\varepsilon_0} \frac{q_1 q_2}{[d-(r_1+r_2)]^2}$ d) Zero	
20	Two charges - 10C and +10C are placed 10 cm apart. Potential at the centre of the line joining the two charges is:	[1]
	a) 4 V	
	b) zero	
	c) - 2 V	
	d) 2 V	
21	Assertion (A): Mass of ion is slightly differed from its element.	[1]
	<b>Reason</b> ( <b>R</b> ): Ion is formed, when some electrons are removed or added so mass changes.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
22	<b>Assertion</b> (A): If two spherical conductors of different radii have the same surface charge densities, then their electric field intensities will be equal.	[1]
	<b>Reason (R):</b> Surface charge density = $\frac{Totalc  harge}{area}$ .	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
23	<b>Assertion</b> ( <b>A</b> ): Electrostatic field lines start at positive charges and end at negative charges.	[1]

	<b>Reason</b> ( <b>R</b> ): Field lines are continuous curves without any breaks and they form closed loop.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
24	<b>Assertion:</b> The surface densities of two spherical conductors of different radii are equal. Then the electric field intensities near their surface are also equal.	[1]
	Reason: Surface density is equal to the charge per unit area.	
	a) Assertion and reason both are correct statements and reason is correct explanation for assertion.	
	b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.	
	c) Assertion is correct statement but reason is wrong statement.	
	d) Assertion is wrong statement but reason is correct statement.	
25	<b>Assertion (A):</b> The whole charge of a conductor cannot be transferred to another isolated conductor.	[1]
	<b>Reason</b> ( <b>R</b> ): The total transfer of charge from one to another is not possible.	
	a) Both A and R are true and R is the correct explanation of A	
	b) Both A and R are true but R is NOT the correct explanation of A	
	c) A is true but R is false	
	d) A is false and R is also false	
26	<b>Assertion:</b> Positive charge always moves from a higher potential point to a lower potential point.	[1]
	Reason: Electric potential is a vector quantity.	
	a) Assertion and reason both are correct statements and reason is correct explanation for assertion.	
	b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.	
	c) Assertion is correct statement but reason is wrong statement.	
	d) Assertion is wrong statement but reason is correct statement.	
27	Assertion (A): The potential difference between any two points in an electric field	[1]

	depends only on initial and final position.	
	<b>Reason (R):</b> Electric field is a conservative field so the work done per unit positive charge does not depend on path followed.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
28	<b>Assertion</b> (A): A metallic shield in form of a hollow shell may be built to block an electric field.	[1]
	<b>Reason</b> ( <b>R</b> ): In a hollow spherical shield, the electric field inside it is zero at every point.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
29	Assertion (A): A capacitor can be given only a limited amount of charge.	[1]
	<b>Reason</b> ( <b>R</b> ): After a limited value of charge, the dielectric strength of dielectric between the capacitor plates breaks down.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
30	<b>Assertion</b> ( <b>A</b> ): If the distance between parallel plates a capacitor is halved and dielectric constant is made three times then the capacitance becomes six times.	[1]
	<b>Reason</b> ( <b>R</b> ): Capacitance of the capacitor does not depend upon the nature of the material of the plates of the capacitor.	
	a) Both A and R are true and R is the correct explanation of A.	
	b) Both A and R are true but R is not the correct explanation of A.	
	c) A is true but R is false.	
	d) A is false but R is true.	
31	A small brass sphere having a positive charge of $1.7 \times 10^{-8}$ C is made to touch another sphere of the same radius having a negative charge of $3.0 \times 10^{-9}$ C. Find	[1]

	the force between them when they are separated by a distance of 20 cm. What will be the force between them when they are immersed in oil of dielectric constant 3?	
32	Calculate the amount of work done in turning an electric dipole of dipole moment $3 \times 10^{-8}$ Cmfrom its position of unstable equilibrium to the position of stable equilibrium in a uniform electric field of intensity 10 <sup>-3</sup> NC <sup>-1</sup> .	[1]
33	A charge qis placed at the centre of a cube of side l. What is the electric flux passing through each face of the cube?	[1]
34	A sphere $S_1$ of radius $r_1$ encloses a net charge Q. If there is another concentric sphere $S_2$ of radius $r_2$ ( $r_2 > r_1$ ) enclosing charge 2Q, find the ratio of the electric flux through $S_1$ and $S_2$ . How will the electric flux through sphere $S_1$ change if a medium of dielectric constant K is introduced in the space inside $S_2$ in place of air?	[1]
35	A point charge of $17.7\mu$ C is located at the centre of a cube of side 0.03 m. Find the electric flux through each face of the cube.	[1]
36	Two insulated charged copper spheresA and B of identical size have the charges $q_A$ and $q_B$ respectively. A third sphere C of the same size but uncharged is brought in contact with the first and then with the second and finally removed from both. What are the new charges on A and B?	[1]
37	An inflated balloon is charged by rubbing with fur. Will it stick readily to a conducting wall or to an insulating wall? Give reason.	[1]
38	What is the nature of electrostatic force between two point electric charges $q_1$ and $q_2$ if	[1]
	1. $q_1 + q_2 > 0?$	
	2. $q_1 + q_2 < 0?$	
39	Show the electric field due to line charge at any plane is same in magnitude and directed radially upward.	[1]
40	A metallic sphere is placed in a uniform electric field as shown in the figure. Which path is followed by electric field lines and why?	[1]
41	Can a body have a charge of $0.8 \times 10^{-19}$ C? Justify your answer by comment?	[1]
42	The Figure shows a point charge + Q, located at a distance $\frac{R}{2}$ from the centre of a spherical metal shell. Draw the electric field lines for the given system.	[1]
L		

43	In which orientation, a dipole placed in a uniform electric field is in (i) stable equilibrium (ii) unstable equilibrium?	[1]
44	Draw the lines of force of an electric dipole.	[1]
45	What is the least possible value of charge?	[1]
	Section B	
46	Define electric flux and write its SI unit. The electric field components in the figure shown are: $ \overbrace{a}^{\gamma} \xrightarrow{e^{-a} \xrightarrow{a} \xrightarrow{a} \xrightarrow{a} \xrightarrow{x}} x $	[2]
	E $_x = ax$ , E $_y = 0$ , E $_z = 0$ where $\alpha = \frac{100N}{Cm}$ Calculate the charge within the cube, assuming a = 0.1 m	
47	An infinite number of charges each equal to $4\mu$ C are placed along x - axis at x = 1 m, x = 2 m, x = 4 m, x = 8 m and so on. Find the total force on a charge of 1 C placed at the origin.	[2]
48	A proton falls down through a distance of 2 cm in a uniform electric field of magnitude $3.34 \times 10^{-1}$ NC <sup>-1</sup> . Determine	[2]
	1. the acceleration of the electron	
	2. the time taken by the proton to fall through the distance of 2 cm, and	
	3. the direction of the electric field.	
	Take mass of a proton =1.67 × 10 $^{-27}$ kg.	
49	Ten positively charged particles are kept fixed on the x - axis at points $x = 10$ cm, 20 cm, 30 cm,, 100 cm. The first particle has a charge $1.0 \times 10^{-8}$ C, the second 8 $\times 10^{-8}$ C, third 27 $\times 10^{-8}$ C, and so on. The tenth particle has a charge 1000 $\times 10^{-8}$ C. Find the magnitude of the electric force acting on a 1 C charge placed at the origin.	[2]
50	A right circular cylinder of length <b>a</b> and radius <b>r</b> has its centre at the origin and its axis along the x - axis so that one face is at $x = +\frac{a}{2}$ and the other at $x = -\frac{a}{2}$ , as shown in the figure. A uniform electric field is acting parallel to the x - axis such that $\vec{E} = E_0 \hat{i}$ for $x > 0$ and $= \vec{E} = -E_0 \hat{i}$ for $x > 0$ .	[2]

	Find out the flux (i) through the flat faces, (ii) through the curved surface of the cylinder. What is the net outward flux through the cylinder and the net charge inside the cylinder?	
51	Two identical metallic spheres A and B, each carrying a charge q, repel each other with a force F. A third metallic sphere C of the same size, but uncharged, is successively made to touch the spheres A and B, and then removed away. What is the force of repulsion between A and B?	[2]
52	Define the term electric flux. Write its SI unit. What is the flux due to electric field $\vec{E} = 3 \times 10^{3} \hat{i}$ N/C through a square of side 10 cm, when it is held normal to $\vec{E}$ ?	[2]
53	<ol> <li>The outward electric flux due to charge +Q is independent of the shape and size of the surface which encloses it.Give two reasons to justify this statement.</li> <li>Two identical circular loops 1 and 2 of radius R each have linear charge densities - λ and + λ C/m respectively. The loops are placed coaxially with their centres R √3 distance apart. Find the magnitude and direction of the net electric field at the centre of loop 1.</li> </ol>	[2]
54	<ul> <li>An infinite number of charges, each equal to q are placed along X - axis at x = 1, x = 2, x = 4, x = 8, and so on.</li> <li>1. Find the electric field at the point x = 0 due to this set up of charges.</li> <li>2. What will be the electric field, if in the above set up, the consecutive charges have opposite signs.</li> </ul>	[2]
55	Two large parallel plane sheets have uniform charge densities $+\sigma$ and $-\sigma$ . Determine the electric field (i) between the sheets, and (ii) outside the sheets.	[2]
56	To what potential we must chargeninsulated sphere of radius 14 cm so that the surface charge density isequal to $1\mu$ Cm <sup>-2</sup> ?	[2]
57	A network of four capacitors each of 15µF capacitance is connected to a 500 V supply as shown in the figure. Determine	[2]
	What is the area of the plates of a OE normalish plate consistent sizes that the	[2]

	separation between the plates is 0.5 cm? [You will realize from your answer why ordinary capacitors are in the range of $\mu$ F or less. However, electrolytic capacitors do have a much larger capacitance (0.1 F) because of very minute separation between the conductors.]	
59	Two particles have equal masses of 5.0 g each and opposite charges of $+4 \times 10^{-5}$ C and $-4.0 \times 10^{-5}$ C. They are released from rest with a separation of 1.0 m between them. Find the speeds of the particles when the separation is reduced to 50 cm.	[2]
60	A parallel plate capacitor is filled by a dielectric whose relative permittivity varies with the applied voltage (U) as $\varepsilon = \alpha$ U where $\alpha = 2V^{-1}$ . A similar capacitor with no dielectric is charged to U <sub>0</sub> = 78 V. It is then connected to the uncharged capacitor with the dielectric. Find the final voltage on the capacitors.	[2]
61	The two graphs drawn here, show the variation of electrostatic potential (V) with $\frac{l}{r}$ (r being a distance of the field point from the point charge) for two point charges q $_1$ and q $_2$ .	[2]
	1. What are the signs of the two charges?	
	2. Which of the two charges has a larger magnitude and why?	
	92	
	$(\frac{1}{r}) \rightarrow$	
62	Show that the capacitance of a spherical conductor is proportional to its radius. Hence justify that a farad is a large unit of capacitance.	[2]
63	A parallel plate is charged by a battery. When the battery remains connected, a dielectric slab is inserted in the space between the plates. Explain what changes if any, occur in the values of	[2]
	1. potential difference between the plates	
	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> </ol>	
	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> </ol>	
	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> <li>charge on the plates</li> </ol>	
	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> <li>charge on the plates</li> <li>energy stored in the capacitor?</li> </ol>	
	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> <li>charge on the plates</li> <li>energy stored in the capacitor?</li> </ol>	
64	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> <li>charge on the plates</li> <li>energy stored in the capacitor?</li> </ol> Two insulated charged spheres of radii 7 cm and 13 cm and having the same charge are connected by a conductor and then they are separated. Which of the two spheres will carry greater charge?	[2]
64	<ol> <li>potential difference between the plates</li> <li>electric field strength between the plates</li> <li>capacitance</li> <li>charge on the plates</li> <li>energy stored in the capacitor?</li> </ol> Two insulated charged spheres of radii 7 cm and 13 cm and having the same charge are connected by a conductor and then they are separated. Which of the two spheres will carry greater charge? The electric field due to a point charge at a distance r depends according to the	[2]
64	1.potential difference between the plates2.electric field strength between the plates3.capacitance4.charge on the plates5.energy stored in the capacitor?Two insulated charged spheres of radii 7 cm and 13 cm and having the same charge are connected by a conductor and then they are separated. Which of the two spheres will carry greater charge?The electric field due to a point charge at a distance r depends according to the inverse square law ( $\propto \frac{l}{r^2}$ ). State how the following quantities depend upon r:	[2]
64	1. potential difference between the plates2. electric field strength between the plates3. capacitance4. charge on the plates5. energy stored in the capacitor?Two insulated charged spheres of radii 7 cm and 13 cm and having the same charge are connected by a conductor and then they are separated. Which of the two spheress will carry greater charge?The electric field due to a point charge at a distance r depends according to the inverse square law ( $\propto \frac{l}{r^2}$ ). State how the following quantities depend upon r:1. potential due to a point charge	[2]

	R(r < R).	
	Section C	
66	Charges of $+5\mu$ C, $+10\mu$ C and $-10\mu$ C are placed in air at corners A, B and C of an equilateral triangle ABC, having each side equal to 5 cm. Determine the resultant force on the charge at A.	[3]
67	Two small identical electric dipoles AB and CD, each of dipole moment $\vec{p}$ are kept at an angle of 120 ° to each other in an external electric field $\vec{E}$ pointing along the x - axis as shown in the figure. Find the	[3]
	1. dipole moment of the arrangement, and	
	2. magnitude and direction of the net torque acting on it.	
	$x' \xrightarrow{O}_{z^{+}} y$	
68	In Fig., the electric field is directed along positive X - direction and given by	[3]
	$E_{x} = 5 A x + 2 B,$	
	where E is in NC $^{-1}$ and x is in metre. A and B are constants with dimensions.	
	$rac{10 \text{ cm}}{2}$	
	Taking A = 10 NC $^{-1}$ m $^{-1}$ and B = 5 NC $^{-1}$ m $^{-1}$ , calculate	
	1. the electric flux through the cube.	
	2. net charge enclosed within the cube	
69	1. Two insulated charged copper spheres A and B have their centres separated by a distance of 50 cm. What is the mutual force of electrostatic repulsion if the charge on each is $6.5 \times 10^{-7}$ C? The radii of A and B are negligible compared to the distance of separation. Also compare this force with their mutual gravitational attraction if each weighs 0.5 kg.	[3]
	2. What is the force of repulsion if	
	a. each sphere is charged double the above amount, and the distance between them is halved;	
	<ul> <li>b. the two spheres are placed in water? (Dielectric constant of water = 80).</li> </ul>	
70	The force experienced by a unit charge when placed at a distance of 0.10 m from the middle of an electric dipole on its axial line is 0.025 N and when it is placed at a	[3]

	distance of 0.2 m, the force is reduced to 0.002 N. Calculate the dipole length.	
71	Two charges - q each are separated by distance 2d. A third charge +q is kept at mid - point O. Find potential energy of +q as a function of small distance x from Odue to - q charges. Sketch P.E. v/s x and convince yourself that the charge at O is in an unstable equilibrium.	[3]
72	A dielectric slab of thickness 1.0 cm and dielectric constant 5 is placed between the plates of a parallel plate capacitor of plate area $0.01m^2$ and separation 2.0 cm. Calculate the change in capacity on introduction of dielectric. What would be the change, if the dielectric slab were conducting?	
73	Two metal spheres, one of radius R and the other of radius 2R, both have the same surface charge density $\sigma$ . They are brought in contact and separated. What will be new surface charge densities on them?	[3]
74	Two identical parallel plate capacitors A and B are connected to a battery of emf E volts with the switch S is closed. The switchis now opened and the free space between the plates of the capacitors is filled with a dielectric of dielectric constant K. Find the ratio of the total electrostatic energy stored in both capacitors before and after the introduction of the dielectric.	[3]
75	<ul> <li>Three identical capacitors C<sub>1</sub>, C<sub>2</sub> and C<sub>3</sub> of capacitance 6 µ F each are connected to a 12 V battery as shown. Find:</li> <li>1. charge on each capacitor.</li> <li>2. equivalent capacitance of the network.</li> </ul>	[3]
	<ol> <li>energy stored in the network of capacitors.</li> </ol>	

# **PHYSICAL EDUCATION**

Complete your lab manual work for your practical.

# FINE ARTS

HOLIDAY HOMEWORK					
GRADE -XII (FINE ARTS)					
Traction of an as	1.1 he Holiday assignment should be creative by using your own				
Instructions:	Creativity.				
WORK SPECIE	TICATION.				
	Five coloured sheets with minimum three objects using any colour as a				
Still Life:	medium.				
<b>REFERENCE:</b>					
Realistic	Five figurative composition with minimum three human figures using any				
Composition	colour as a medium.				
<b>REFERENCE:</b>					
Folk ART	Five Folk Art Painting using Mandala Art, Madhubani Painting, Kali Ghat				
Painting	Painting, carli Art				
<b>REFERENCE:</b>					
Portrait:	Five Portrait have to be made using Pencil shading, Water Color or Acrylic Color Medium				
<b>REFERENCE:</b>					
Life Study:	Five Life study have to be made using pencil shading medium				
<b>REFERENCE:</b>					
Object Study:	Create five detailed drawings of everyday objects using various mediums such as pencil, charcoal, or ink. Focus on capturing textures, shadows, and details.				
<b>REFERENCE:</b>					
Abstarct Composition:	Five Abstarct Composition have to be made using Acrylic color medium				
<b>REFERENCE:</b>					
Perpective	Five Perpective drawing or Painting Have to be made using any color as a				

Drawing & Painting:	medium
<b>REFERENCE:</b>	
Nature Study:	Five Nature Drawing have to be made using any color as a medium
<b>REFERENCE:</b>	
Collage Art:	Three collage art have to be made using waste paper, Fabric, Mixed Media
<b>REFERENCE:</b>	
	Two Mosaic art have to be made using stone, glass, tiles, fevicrylmouldit
Mosaic Art:	clay
<b>REFERENCE:</b>	
<b>&amp;</b> Revise the	Chapter 1-The Origin and the Development of Miniature Painting in India
P.T 1	Chapter 2-Six Limbs of Indian Painting and The Rajasthani school of
SYLLABUS:	Miniature Painting