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| **CLASS XII A** |  **HOLIDAY HOMEWORK 2025-26** |

**ENGLISH**

**General Instructions:**

1. **Read the newspaper daily with special emphasis on school based reports, notices, posters and articles. Pay attention to the language used.**
2. **Attempt the following questions in English Registers.**
3. **Date of submission is 25 June,2025.**

**READING**

**Q1. Read the passage and on the basis of your understanding of the passage answer the questions given below:**

1. I was only a year and some months younger than Valodya; we grew up, studied and played together. No distinction of elder and younger was made between us. But just about the time I am speaking of I began to realize that I was no companion for him, either in age, in interests or in ability. It even seemed to me that Valodya himself was aware of his superiority and was proud of it. This idea (it may have been a wrong one) was inspired by my vanity which suffered every time I came in contact with him. He was better than me in everything; at lessons, in arguments and in manners, and all this took me farther from him and caused me moral anguish which I could not understand. When Valodya was given a tucked linen shirt for the first time I was unhappy for not having a shirt like that. I am sure I would have felt happier if I was convinced that every time, he arranged his collar it was not done to annoy me.

2. What tormented me most was that it sometimes seemed to me Valodya understood what was going on inside me but tried to hide it. But perhaps my sensitiveness and tendency to analyse deceived me in this case. It may be Valodya did not feel at all as I did. He was impulsive and his enthusiasm in different hobbies did not last long.

3. He would suddenly develop a passion for pictures, himself take up painting, spend all his money buying them and beg them of his drawing master, of papa and of grandmamma. Then it would be a craze for curios to decorate his table, collecting them from every room in the house, or a mania for novels which he obtained on the sly and read all day and night. I could not help being impressed by his hobbies but I was too proud to imitate him and too young and not independent enough to choose a hobby for myself. But there was nothing I envied so much as Valodya’s happy large heartedness which showed itself most strikingly when we quarreled. I always felt that he was behaving well but I could not do likewise.

4. Once when his passion of ornaments was at its height, I went up to his table and accidentally broke an empty bright-coloured little scent bottle. “Who asked you to touch my things?” demanded Valodya coming into the room and seeing how I had upset the symmetry of the different treasures on his table. “And where is the scent bottle? You must have…..”

5. “I knocked it over by accident and it broke. What does it matter?” “Do me the favour-never dare touch my things again”, he said, putting the pieces of broken flask together and looking at theme sorrowfully. “And you please don’t issue orders” I retorted, “that’s all.” And I smiled, though I did not feel in the least like smiling. “Yes, it’s nothing to you but it does matter to me,” pursued Valodya, jerking his shoulder, a gesture he had inherited from pap. “He goes and breaks it and then laughs, the nasty little brat!” “I am a little brat; and you’re big but you’re stupid.” “I am not going to quarrel with you,” said Valodya, giving me a slight push, “go away.” “Don’t push!” “Get away!” “Don’t push, I tell you!” Valodya took my word and tried to drag me away from the table; but I was beside myself by now; I got hold of the leg of the table and tipped it over. “There now!” And all his china and glass ornaments crashed to the floor. “You disgusting little boy!” cried Valodya, trying to save some of his falling treasures. “Well, now it is all over between us,” I thought as I left the room, “we have quarreled for good.”

6. As soon as afternoon lessons were over, I left the room. I was too scared, uncomfortable and ashamed to be alone with my brother. After our history lesson in the evening, I took my exercise books and started towards the door. As I passed Valodya, though I wanted to go up to him and make friends I scowled and put on an angry expression. At that moment Valodya raised his head and, with a meaningful smile, looked me full in the face. Our eyes met and I knew that he understood me; but some irresistible feeling made me turn away.

7. “Nicky!” he said in a most natural voice without a scrap of pathos. “Don’t be cross any more. Forgive me if I offended you.” And he held out his hand. Something that came higher and higher seemed to be pressing my chest and stopping my breath but this only lasted a second; tears came to my eyes and I felt better. “Forgive….m-me, Val-dya,” I stammered, squeezing his hand. Valodya looked at me as if he could not make out at all why there should be tears in my eyes. - Leo Tolstoy

**On the basis of your reading of the above excerpt, answer the following questions briefly: -**

**(a)** Why did Nicky feel that he was not an apt companion for Valodaya?

**(b)** Which aspect of Valodya’s personality was Nicky most upset about?

**(c)** Why did Nicky feel uncomfortable and ashamed to be alone with his brother?

**(d)** What did Nicky do to show that he was sorry for all that he had done in the morning? (e) Was the narrator repentent for his behavior? How do you know?

**(f)** What does Valodaya’s behavior show about his character?

**(g)** **Choose the correct option:**

**Which of the following is NOT true for Valodaya?**

(i) He was fond of reading.

(ii) He was inclined towards painting.

(iii) He was reckless with money.

(iv) He liked collecting curios and works of art.

**(h)** “I am a little brat, and you’re big but you are stupid.” This line highlights that Nicky –

 (i) was disrespectful towards his brother

(ii) was impulsive and volatile, but loved his brother

(iii) was jealous of his brother

(iv) was unapologetic towards his brother

**(j)** Give the synonym of ‘pride’ (para 1) and the antonym of ‘comforted’ (para 2)

**Q2. Read the passage and on the basis of your understanding of the passage answer the questions given below:**

I. Over the last five years, more companies have been actively looking for intern profiles, according to a 2018-19 survey by an online internship and training platform. This survey reveals that India had 80% more internship applications — with 2.2 million applications received in 2018 compared to 1.27 million in the year before. The trend was partly due to more industries looking to have fresh minds and ideas on existing projects for better productivity. What was originally seen as a western concept, getting an internship before plunging into the job market, is fast gaining momentum at Indian workplaces.

II. According to the survey data, India’s National Capital Region has been the top provider of internships, with a total of 35% internship opportunities, followed by Mumbai and Bengaluru at 20% and 15%, respectively. This includes opportunities in startups, MNCs and even government entities. The survey also revealed popular fields to find internships in. There has been growing awareness among the students about the intern profiles sought by hiring companies that often look for people with real-time experience in management than B- school masters.

III. The stipend has been an important factor influencing the choice of internships. The survey data reveals that the average stipend offered to interns was recorded as ₹7000 while the maximum stipend went up to ₹85,000. According to statistics, a greater number of people considered virtual internships than in-office internships. Virtual internships got three times more applications than in-office, since a large chunk of students were the ones already enrolled in various courses, or preferred working from home.

IV. Internship portals have sprung up in the last three to four years and many of them already report healthy traffic per month. Reports suggest that on an average, an internship portal company has around 200,000-plus students and some 8,000 companies registered on it. It gets around two lakh visits online every month. The Managing Director of a leading executive search firm says that though these web platforms are working as an effective bridge between the industry and students, most established companies are still reluctant to take too many interns on board for obvious reasons.

**Based on your understanding of the passage, answer any six out of the eight questions**

**by choosing the correct option.**

**1.** Select the correct inference with reference to the following:

    Over the last five years, more companies have been actively looking for intern profiles…

a. The past five years have seen active applications by interns to several companies.

b. The activity for intern profiling by the companies has reached a gradual

    downslide over the past five years.

c. There were lesser companies searching for intern profiles earlier, as compared to

    those in the recent five years.

d. Several companies have initiated intern profiling five times a year in the recent past.

**2.** Select the central idea of the paragraph likely to precede paragraph I.

a. Process of registering for internships

b. Knowing more about internships

c. Dos and Don’ts for an internship interview

d. Startups and internships

**3.** Based on your reading of paragraphs II-III, select the appropriate counter- argument to the given argument.

Argument: I don’t think you’ll be considered for an internship just because you’ve been the student editor and Head of Student Council.

a. I think I have a fair chance because I’m applying for a virtual position than an in-office

    one.

b. I have real-time experience in managing a team and many companies consider it

    more meritorious than a degree in Management.

c. I know that my stipend might be on the lower side but I think that it’s a good ‘earn

    while you learn’ opportunity.

d. Lot of metro-cities have a good percentage of positions open and I think I should

    definitely take a chance.

**4.** The survey statistics mention the average stipend, indicating that:

a. 50% interns were offered ₹85,000.

b. ₹7,000 was the lowest and ₹85,000 was the highest.

c. most interns were offered around ₹7,000.

d. No intern was offered more than ₹7,000.

**5.** The phrase ‘healthy traffic’ refers to the:

a. updates from portals about health and road safety.

b. statistics about adherence to traffic rules by the portals.

c. sizeable number of visitors to the portal per month.

d. monthly data about the health of internship applicants.

**6.** Read the two statements given below and select the option that suitably explains them.

(1) Established companies are reluctant to take too many interns on board.

(2) Probability of interns leaving the company for a variety of reasons, is high.

a. (1) is the problem and (2) is the solution for (1).

b. (1) is false but (2) correctly explains (1).

c. (1) summarises (2).

d. (1) is true and (2) is the reason for (1).

**Q3.** Choose a significant topic (Social /Environmental issues) that directly pertains to our current

circumstances for the project work to be done in Term 2. Listen to podcasts/interviews/ radio

 or T.V documentary on the same topic and prepare a questionnaire (containing 12-15 ques) on

 the same.

 **WRITING**

**Q4.** Choose any one of the chapters given below and make a book cover on the same, on A3 size sheet:

* **The Last Lesson**
* **Lost Spring**
* **Deep Water**
* **My Mother at Sixty-Six**
* **The Third Level**

**Q5.** Prepare an attractive poster (A-3 size sheet) on the theme ‘Climate Change and the World in 2050’

**Q6.** The Minister of Surface Transport and Highways, Government of India, New Delhi has invited financial and technical collaboration from well-known corporate houses for the upgrade of the existing highways and the construction of new high-tech highways and expressways**.**

Write a letter to the Editor of a national daily in about 120-150 words, lauding the decision. Give reasons to support the view that this decision will tremendously improve the highway infrastructure and boost the economy through better, more comfortable, and safer movement of passengers and cargo.

 **Q7**. You are Minto Mathews, the President of the School’s Gardening Club. The club is organizing a drive for promoting gardening as a hobby and as environment conservation campaign. Draft a notice in about 50 words, for the school notice board, addressing the students of all classes, informing them about the drive and urging them to do their best to make it a success. Mention the proposed distribution of free saplings on the occasion and a talk on 'Useful Gardening Tips'.

**LITERATURE**

 **Q8. Attempt the questions given below in 120-150 words each.**

1. “We’ve all a great deal to reproach ourselves with” said M.Hamel. Refer to the context and explain what he wanted to convey to his students.
2. Mukesh is not like the others. His dreams loom like a mirage amidst the dust of streets that fill his town Firozabad. Justify the statement in the light of contrast in the mindsets of Mukesh and the people of Firozabad.
3. ‘Imagination is a temporary refuge from reality’. Explain with reference to the chapter ‘The Third Level’.
4. Imagine the mother gets to know of the poet’s fears. Write a letter, as the mother, telling the daughter why she must not dwell on these fears. (My Mother at Sixty-Six)

**PHYSICS**

**Date of submission: 26 June, 2025**

**I. Complete the following assignment in your physics notebook**

1. What is the total flux through the faces of the cube with side of length a if a charge q is placed at corner A of the cube ?

 

1. A hollow metal sphere of radius 5 cm is charged such that the potential on its surface is 10 V. What is the potential at the centre of the sphere?
2. The given graph shows the variation of charge ‘q’ versus potential difference ‘V’ for two capacitors C1 and C2. Both the capacitors have the same plate separation but the plate area of C2 is greater than that of C1. Which line (A or B) corresponds to C1 and why?



1. Why is electrostatic potential constant throughout the volume of the conductor and has the same value (as inside) on its surface?
2. The figure shows two identical capacitors, C1 and C2, each of 1 µF capacitance connected to a battery of 6 V. Initially switch ‘S’ is closed. After some time ‘S’ is left open and dielectric slabs of dielectric constant K = 3 are inserted to fill completely the space between the plates of the two capacitors. How will (i) the charge and (ii) potential difference between the plates of the capacitors be affected after the slabs are inserted?

 

1. A particle, having a charge +5 µC, is initially at rest at the point x = 30 cm on the x axis. The particle begins to move due to the presence of a charge Q that is kept fixed at the origin. Find the kinetic energy of the particle at the instant it has moved 15 cm from its initial position if (i) Q = +15 µC and (ii) Q = -15 µC
2. Two identical capacitors of 12 pF each are connected in series across a battery of 50 V. How much electrostatic energy is stored in the combination? If these were connected in parallel across the same battery, how much energy will be stored in the combination now? Also, find the charge drawn from the battery in each case.
3. Two uniformly large parallel thin plates having charge densities + σ and – σ are kept in the X-Z plane at a distance ‘d’ apart. Sketch an equipotential surface due to electric field between the plates. If a particle of mass ‘m’ and charge 'q’ remains stationary between the plates, what is the magnitude and direction of this field?
4. Two small identical electrical dipoles AB and CD, each of dipole moment ‘p’ are kept at an angle of 120°. What is the resultant dipole moment of this combination? If this system is subjected to electric field $\vec{(E}$) directed along + X direction, what will be the magnitude and direction of the torque acting on this?
5. Plot a graph showing the variation of current density (j) versus the electric field (E) for two conductors of different materials. What information from this plot regarding the properties of the conducting material, can be obtained which can be used to select suitable materials for use in making (i) standard resistance and (ii) connecting wires in electric circuits?
6. The equivalent capacitance of the combination between A and B in the given figure is 4 μF.

 
(i) Calculate capacitance of the capacitor C.
(ii) Calculate charge on each capacitor if a 12 V battery is connected across terminals A and B.
(iii) What will be the potential drop across each capacitor?

1. Two parallel plate X and Y capacitors, X and Y, have the same area of plates and same separation between them. X has air between the plates while Y contains a dielectric medium of εr =4.
(i) Calculate capacitance of each capacitor if equivalent capacitance of the combination is 4 μF.
(ii)Calculate the potential difference between the plates of X and Y.
(iii) What is the ratio of electrostatic energy stored in X and Y?
2. Two parallel plate capacitors of capacitances C1 and C2 such that C1 = 3C2 are connected across a battery of V volts as shown in the figure. Initially the key (k) is kept closed to fully charge the capacitors. The key is now thrown open and a dielectric slab of dielectric constant ‘K’ is inserted in the two capacitors to completely fill the gap between the plates,

Find the ratio of:

1. the net capacitance and
2. the energies stored in the combination, before and after the introduction of the dielectric slab.

14.(i) Find equivalent capacitance between A and B in the combination given below. Each capacitor is of 2 µF capacitance



 (ii) If a DC source of 7 V is connected across AB, how much charge is drawn from the source and what is the energy stored in the network?

15. Two metallic wires of the same material have the same length but cross-sectional area is in the ratio 1:2. They are connected

1. in series and
2. in parallel.

Compare the drift velocities of electrons in the two wires in both the cases (i) and (ii)

16. Use Kirchhoff’s rules to determine the value of the current I1 flowing in the circuit shown in the figure.

 

17. The plot of the variation of potential difference A across a combination of three identical cells in series, versus current is as shown below. What is the EMF and internal resistance of each cell?



18.Two wires of equal length, one of copper and the other of manganin have the same resistance. Which wire is thicker?

19. Draw a graph showing the variation of resistivity with temperature for nichrome. Which property of nichrome is used to make standard resistance coils?

20. Figure shows a plot of current ‘l’ flowing through the cross-section of a wire versus the time ‘t’. Use the plot to find the charge flowing in 10 s through the wire.



**II. Note down the following activities from your lab manual in your activity file, with relevant diagrams to be drawn on the blank side.**

1. To assemble the components of a given electrical circuit.
2. To draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
5. To study the nature and size of the image formed by a convex lens, on a screen by using a candle and a screen (for different distances of the candle from the lens).
6. To observe diffraction of light due to a thin slit.

**CHEMISTRY**

**Date of submission: 27 June 2025**

**I Complete the following assignment in your Chemistry register.**

1. Suggest a reagent for the following conversion.



1. Which of the following compounds (a) and (b) will not react with a mixture of NaBr and

 H2SO4. Explain why?



1. Give the order of reactivity of the following towards SN1 mechanism:
	1. RI, RCl, RBr, RF
	2. CH3CH2Br, (CH3)2CHBr, (CH3)3Br
	3. Vinylic chloride, Benzylic chloride, Chlorobenzene, Allylic chloride
2. The following table contains osmotic pressure data for three compounds dissolved in various solvents:

(a) If the concentration of protein is doubled keeping all other variables constant, what will be the osmotic pressure of the new solution?

(b) When one litre of cellulose solution was heated to 315 K, its osmotic pressure changed to 0.00248 atm. What is the molecular mass of the cellulose in the solution?

(c) A solution of 10 g of protein in a litre of solvent was found to be isotonic to the haemoglobin solution given above in the table, at the same temperature. If the molecular weight of the protein is 130,000 g/mol, what is the molecular weight of haemoglobin?

1. What is chiral carbon? Why does SN1 give a racemic mixture whereas SN2 gives inverted product?
2. Aryl halides are extremely less reactive towards nucleophilic substitution. Predict and explain the order of reactivity of the following compounds towards nucleophilic substitution.



1. Why do aryl halides not undergo nucleophilic substitution?
2. Why is Halogen group in aryl halides ortho- para directing but deactivating for electrophilic substitution?
3. Why is the C—O—H bond angle in alcohols slightly less than the tetrahedral angle whereas the C—O—C bond angle in ether is slightly greater?
4. Give a chemical test to distinguish between the following pairs of compounds:
* chloroethane and bromoethane
* Vinyl chloride and chloroethane
1. Ethers can be prepared by Williamson synthesis in which an alkyl halide is reacted with sodium alkoxide. Di-tert-butyl ether can’t be prepared by this method. Explain.
2. Carry out the following conversions:
3. Butane to 2-Nitrobutane
4. But-1ene to But-2ene
5. 1-Bromoethane to Butane
6. Chlorobenzene to p-Nitrophenol
7. Propanol to Butane nitrile
8. Ethane to Ethene
9. Ethene to Ethyne
10. Ibrahim collected 10mL each of fresh water and ocean water. He observed that one sample labeled “P” froze at 0 oC while the other “Q” at -1.3oC. Ibrahim forgot which of the two, “P” or “Q” was ocean water. Help him identify which container contains ocean water, giving suitable rationalization for your answer.
11. A 5% solution of Na2SO4.10H2O (MW = 322 gmol-1) is isotonic with 2% solution of non- electrolytic, nonvolatile substance X. Find out the molecular weight of X.
12. If relative decrease in vapour pressure is 0.4 for a solution containing 1 mol NaCl in 3 mol of H2O, then what will be the % ionization of NaCl?
13. When 2.56 g of sulphur was dissolved in 100 g of CS2, the freezing point lowered by 0.383 K. Calculate the formula of sulphur (Sx). (Kf for CS2 = 3.83 K kg mol−1, Atomic mass of sulphur = 32 g mol−1]
14. If O2 gas is bubbled through water at 293 K, how many moles of O2 gas would dissolve in 1 L of water? Assume that O2 gas exerts a partial pressure of 0.823 bar. Given that the Henry’s law constant for O2 at 293 K is 34.86 kbar.
15. Explain the mechanism of the following reactions :

(i) Addition of Grignard’s reagent to the carbonyl group of a compound forming an adduct followed by hydrolysis.

(ii) Acid catalysed dehydration of an alcohol forming an alkene.

(iii) Acid catalysed hydration of an alkene forming an alcohol.

19. Explain the following observations :

(i) The boiling point of ethanol is higher than that of methoxymethane.

(ii) Phenol is more acidic than ethanol.

(iii) o- and p-nitrophenols are more acidic than phenol.

20. Write the major product in the following equations :

 

**BIOLOGY**

 **Date of submission: 30 June 2025**

1. You are required to make mind maps on the following topics given below on an A3 size sheet. Draw/Paste pictures as well.

(a) Gametogenesis

(b) ART

1. Complete the practical file and write the following experiments:
2. Flowers adapted to pollination by different agencies (wind, insects, birds).
3. Pollen germination on stigma through a permanent slide or scanning electron micrograph.
4. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).
5. Meiosis in onion bud cell or grasshopper testis through permanent slides.
6. T.S. of blastula through permanent slides (Mammalian).
7. Controlled pollination - emasculation, tagging and bagging
8. Common disease-causing organisms like *Ascaris*, *Entamoeba*, *Plasmodium*, any fungus causing ringworm through permanent slides, models or virtual images or specimens. Comment on symptoms of diseases that they cause (spotting).

 4. Prepare your investigatory project in the following format on the topics allotted.

 Cover Page

 Acknowledgement

 Index

 Introduction

 Content (10-15 Pages)

 Conclusion

 Bibliography

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| **Investigatory Project Topics** |
| **S.N.** | **Student** |  **Topic** | **SUB-Topics** |
| 1 | Rashi | Study of Chromosomal Disorder | Introduction, Causes, Diagnosis methods, types, 1. Down syndrome- History, Description, Sign and Symptoms, Risk factors, Diagnostic methods, Treatment Prognosis, Frequency 2. Turner Syndrome- Same points 3. Klienfilters Syndrome- Same points. References and Pictures related to all topics |
| 2 | Prachi | Study of Population Interaction: Mutualism | 1. Introduction- About Population interaction, Different types of Population interactions- competition, parasitism, predation, commonsalism, amensalism, mutualism. 2. Mutualism- Introduction, Examples, (At least 5 on different pages with pictures), Advantages, Co-evolution and Mutualism with example, Co-extinction and mutualism with example. References and Pictures related to all topics  |
| 3 | Vaidehi | Study of Mendelian Disorders | Introduction, Genetic disorder types, Mendelian disorder- Hemophilia, Sickle cell aneamia, colour blindness, Thalassimia, Phenylketonuria. References and Pictures related to all topics |
| 4 | Divyansh | Study of the disease Cancer | Introduction, History, Causal organism, Life cycle, Symptoms, Treatment, Precautions, Case study (test report of any patient) References and Pictures related to all topics |
| 5 | Avika | Study of the disease Malaria | Introduction, History, Causal organism, Life cycle, Symptoms, Treatment, Precautions, Case study (test report of any patient) References and Pictures related to all topics |
| 6 | Darpan | Study of Biodiversity Conservation Methods | Introduction, Types, Importances, causes of loss of biodiversity, different types of in-situ and ex-situ conservation with examples in detail. References and Pictures related to all topics |
| 7 | Siya | Study of Sewage Treatment Plant | Introduction, Principle used, primary treatment, secondary treatment, applications. References and Pictures related to all topics |
| 8 | Vihan | Study of Pollination | Introduction, Definition, types of Self and Cross Pollination- Autogamy, Xenogamy, Geitonogay, types on the basis of Pollinating Agents. References and Pictures related to all topics |
| 9 | Vaibhavi | Study of Out-breeding Devices | Introduction, Benefits of Out-Breeding Devices, types- Dichogam (Protandry, Protogamy), Herkogamy (Different heights), Self-incompatibility, Pollen pre-potency, Unisexual Flowers. References and Pictures related to all topics |
| 10 | Rishika | Study of the disease Typhoid | Introduction, History, Causal organism, Life cycle, Symptoms, Treatment, Precautions, Case study (test report of any patient) References and Pictures related to all topics |
| 11 | Guneet | Study of the disease AIDS | Introduction, History, Causal organism, Life cycle, Symptoms, Treatment, Precautions, Case study (test report of any patient) References and Pictures related to all topics |

**Assignment**

 **Complete the following assignment in Biology notebook.**

1. What is apomixis and how is it significant?
2. i) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain?

 ii) It is observed that it does not form a continuous layer around the pollen grain. Give a reason.

 iii) How are ‘pollen banks’ useful?

1. What is cleistogamy? Write one advantage and one disadvantage for the plant.
2. You are conducting artificial hybridisation on papaya and potato. Which one of them would require the step of emasculation and why? However, for both you will use the process of bagging. Justify giving one reason.
3. Name the source of gonadotropins in human females. Explain the changes brought about in the ovary by these hormones during the menstrual cycle.
4. (a) Where do the signals for parturition originate in humans?

 (b) Why is it important to feed the new-born babies on colostrum?

7. (a) When and how does placenta develop in human females?

 (b) How is placenta connected to the embryo?

 (c) Placenta acts as an endocrine gland. Explain.

8. At the time of independence, the population of India was 350 million which exploded to

 over 1 billion by May 2000. List any two reasons for this rise in population. Mention any two

 steps taken by the government to check this population explosion.

9. Explain how do the following act as contraceptives-

 (a)CuT (b)‘Saheli’

10. Explain the zygote intrafallopian transfer technique (ZIFT). How is intrauterine transfer

 technique (IUT) different from it?

**MATHEMATICS**

**Date of submission: 27 June 2025**

**Complete the following assignment in Mathematics notebook.**

|  |  |
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| 1. | Give an example of a 3 x 3 matrix which is:* 1. Symmetric Matrix
	2. Skew-Symmetric Matrix
	3. Neither Symmetric nor Skew-Symmetric Matrix
	4. Symmetric as well as Skew-Symmetric Matrix
 |
| 2. | If f(x) = $\frac{1}{\sqrt{1- x^{2}}}$ $\left[\begin{matrix}1&-x\\-x&1\end{matrix}\right]$ then prove that f(x).f(y) = f($\frac{x+y}{1+xy}$).Hence show that f(x).f(-x) = 1, where $\left|x\right|$ $<$ 1. |
| 3. | If order of Matrix A be m x n, then what will be the order of matrix B if(a) AB & BA both are defined(b) AB’ & B’A both are defined |
| 4. | Find the matrix A, if $\left(\begin{matrix}2&-1\\1&0\\-3&4\end{matrix}\right)$A = $\left(\begin{matrix}-1&-8&-10\\1&-2&-5\\9&22&15\end{matrix}\right)$. |
| 5. | If A = $\left[\begin{matrix}2&0&1\\2&1&3\\1&-1&0\end{matrix}\right]$ find A2 – 5A + 4I and hence find a matrix X such thatA2 – 5A + 4I + X = O |
| 6. | Prove that the function defined by f : N$\rightarrow $N defined by f(x) = x2 +  x + 1 is one-one but not onto.  |
| 7. | Prove that cos[tan-1{sin(cot-1x)}] = $\sqrt{\frac{1+ x^{2}}{2+ x^{2}}}$ |
| 8. | If A = $\left[\begin{matrix}2&3\\5&-2\end{matrix}\right]$ be such that A-1 = kA, then find the value of k. |
| 9. | Find the values of x, y and z if A = $\left[\begin{matrix}0&2y&z\\x&y&-z\\x&-y&z\end{matrix}\right]$ satisfies A’ = A-1 |
| 10. | Let A = {1,2,3, ……,9}and R be a relation on A $×$ A defined by R = {(a, b): $\left|a-b\right|$ is even}is an equivalence relation. Also find the equivalence class of 7. |
| 11. | Find the value of sin-1(sin $\frac{5π}{6}$) + cos-1(cos $\frac{13π}{6}$) |
| 12. | Find the value of the expression: sin(2tan-1$\frac{1}{3}) +cos⁡(tan$-12$\sqrt{2}$). |
| 13. | Find the real solution of the equation: tan-1$\sqrt{x(x+1)}$+ sin-1$\sqrt{x^{2}+x+1}$= $\frac{π}{2}$. |
| 14. | **Let R be the relation in R × R defined by (a, b) R (c, d) if ad (b + c) = bc (a + d) for (a, b), (c, d) in R × R. Prove that R is an equivalence relation.** |
| 15. | **Let A = {1, 2, 3, … 9} and R be the relation in A ×A defined by (a, b) R (c, d) if a + d = b + c for (a, b), (c, d) in A ×A. Prove that R is an equivalence relation and also obtain the equivalent class [(2, 5)].** |
| 16. |  Sherlin and Dhanuja are playing Ludo at home. While rolling the dice, Sherlin’s sister Raji observed and noted the possible outcomes of the throw every time belongs to set {1,2,3,4,5,6}. Let A be the set of players while B be the set of all possible outcomes. A = {S, D}, B = {1,2,3,4,5,6} (a) Let 𝑅 ∶ 𝐵 → 𝐵 be defined by R = {(𝑥, 𝑦): 𝑦 𝑖𝑠 𝑑𝑖𝑣𝑖𝑠𝑖𝑏𝑙𝑒 𝑏𝑦 𝑥} is * 1. Reflexive and transitive but not symmetric
	2. Reflexive and symmetric and not transitive
	3. Not reflexive but symmetric and transitive
	4. Equivalence

(b) Raji wants to know the number of functions from A to B. How many number of functions  are possible?  (i) 62 (ii) 26  (iii) 6! (iv) 212(c) Let R be a relation on B defined by R = {(1,2), (2,2), (1,3), (3,4), (3,1), (4,3), (5,5)}.Then R is  (i) Symmetric (ii) Reflexive (iii) Transitive (iv) None of these t(d) Raji wants to know the number of relations possible from A to B. How many numbers of relations are possible? (i) 62 (ii) 26 (iii) 6! (iv) 212 (e) Let 𝑅: 𝐵 → 𝐵 be defined by R={(1,1),(1,2), (2,2), (3,3), (4,4), (5,5),(6,6)}, then R is 1. Symmetric
2. Reflexive and Transitive
3. Transitive and symmetric
4. Equivalence
 |
| 17. | On her birth day, Seema decided to donate some money to children of an orphanage home. If there were 8 children less, everyone would have got 10 more. However, if there were 16 children more, everyone would have got Rs. 10 less. Let the number of children be x and the amount distributed by Seema for one child be y (in Rs.)Based on the information given above, answer the following questions: (a) The equations in terms x and y are * 1. 5x-4y = 40 ,5x-8y = -80
	2. 5x-4y = 40 5x-8y = 80
	3. 5x-4y = 40 5x+8 y= -80
	4. 5x+4y = 40 5x-8y = -80

(b) Which of the following matrix equations represent the information given above? 1. $\left[\begin{matrix}5&4\\5&8\end{matrix}\right]\left[\begin{matrix}x\\y\end{matrix}\right] $= $\left[\begin{matrix}40\\-80\end{matrix}\right]$
2. $\left[\begin{matrix}5&-4\\5&-8\end{matrix}\right]\left[\begin{matrix}x\\y\end{matrix}\right] $= $\left[\begin{matrix}40\\80\end{matrix}\right]$
3. $\left[\begin{matrix}5&-4\\5&-8\end{matrix}\right]\left[\begin{matrix}x\\y\end{matrix}\right] $= $\left[\begin{matrix}40\\-80\end{matrix}\right]$
4. $\left[\begin{matrix}5&4\\5&-8\end{matrix}\right]\left[\begin{matrix}x\\y\end{matrix}\right] $= $\left[\begin{matrix}40\\-80\end{matrix}\right]$

(c) The number of children who were given some money by Seema, is  (i) 30 (ii) 40 (iii) 23 (iv) 32 (d) How much amount is given to each child by Seema?  (i) ₹ 32 (ii) ₹ 30 (iii) ₹ 62 (iv) ₹ 26(e) How much amount Seema spends in distributing the money to all the students of the  Orphanage?  (i) ₹ 609 (ii) ₹ 960 (iii) ₹ 906 (iv) ₹ 690 |

**COMPUTER SCIENCE**

**Date of Submission:** 30 June, 2025

**GENERAL INSTRUCTIONS**:

* Code for the following programs to be printed on A4 size sheets along with the snapshot of the output
* Font for the Code: Courier New: Font-size – 12
* Only one program and its output to be printed on one A4 size sheet (single side print)
1. Write a program to check if the given number (positive Integer) is Armstrong.
2. Write a program to reverse a given string

a. Using iterative statements in Python

b. Using Slicing Method in Python

1. Write a program to remove all numbers ending with 9 from a given list (without using Python in-built functions)
2. Write a program to find and display the sum of all the integers (positive/negative) that are multiples of 3.
3. Write a Python function that takes a dictionary of names and birth years, and returns a list of people born before 2000.
4. Write a program that inputs a string from the user and replaces every Nth character of the string with #.
5. Write a menu-driven program in Python to create a calculator with the help of user defined functions
6. Write a menu-driven program to create user defined functions that take a number as an input argument and returns:

a. the factorial of the number from the function.

b. whether the given number is prime or not

c. sum of digits of the number

as per the user’s choice

1. Write a function, lenWords(STRING), that takes a string as an argument and returns a tuple containing the length of each word of a string. For example, if the string is "Come let us have some fun", the tuple returned is (4, 3, 2, 4, 4, 3)
2. Write a Python program to create a text file. Write a function to read the file and return the number of words starting with “s” (case-insensitive) in the file.
3. Write a program to read all lines from a text file and display the longest line in the text file.
4. Write a function to read a text file and return the size of the file on disk.
5. Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this, he wants the following information of each candidate to be stored:

- Candidate\_ID – integer

- Candidate\_Name – string

- Designation – string

- Experience – float

You, as a programmer of the company, have been assigned to do this job for Surya.

1. Write a function to input the data of a candidate and append it in a binary file.
2. Write a function to update the data of candidates whose experience is more than 10 years and change their designation to "Senior Manager".
3. Write a function to read the data from the binary file and display the data of all those candidates who are not "Senior Manager".
4. Write a program to create a CSV file for student records (Admin No, Name, Grade, Marks) and display names of those students with marks below 50.
5. Write a program to find the average marks of all students from the CSV file (created in Q14).

**PHYSICAL EDUCATION**

**Date of submission: 27 June 2025**

**To be done in Record/Practical File.**

a) Practical-1: Fitness test administration for all items.

b) Practical-2: Procedure for Asanas, benefits & contraindication for any two Asanas for each lifestyle disease.

c) Practical-3: Procedure for administering Senior Citizen Fitness Test for 5 elderly family members.

d) Practical-4: Any one game of the student’s choice from the list below. Labelled diagram of field & equipment (Rules, Terminologies & Skills) of the same game.

Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket, Bocce & Unified Basketball (CWSN).

* Record File should be of the new pattern.

**Assignment**

**Complete the following assignment in P.ED notebook.**

1. What are the objectives of intramural tournaments?

2. Discuss a method you would choose to spread health awareness and harmony in your area.

 Support your answer with reasons.

3. Describe corrective measures for some common spinal postural deformities.

4. Write down the procedure and contraindications of Matsyasna in detail.

5. Discuss different types of tournaments.

6. Explain the benefits of Women’s participation in Sports.

7. As Mr. Kiren Raju, Sports Minister has ordered to popularize the game of Kabaddi among school students to develop their physical ability, Mr. Gopi, Physical Education Teacher of a reputed CBSE school has decided to conduct an Inter School Kabaddi tournament in his school premises after proper drawing of fixtures. He consulted the Management and the Principal to conduct the Tournament of Pro Kabaddi pattern but the PE teacher was not aware of Pro-Kabaddi Tournament. So he discussed it with the National Kabaddi Referee Association.

1. Which of the following is the best method to organize this kind of tournament?

(a) Knock out

(b) League

(c) Ladder

(d) Pyramid

2. The Knock out tournament is also known as

(a) Combination tournament

(b) Elimination tournament

(c) League tournament

(d) League cum knockout tournament

3. If 17 teams are participating in this tournament, how many teams will get bye?

(a) 15

(b) 1

(c) 13

(d) 9

4. The League tournament is also known as

(a) Knock out tournament

(b) Round Robin tournament

(c) Combination tournament

(d) Elimination tournament