Computer Science

1. Differentiate between append() and extend().
2. Predict the Output

a. L = [10, 20, 30, 40] print(L[1:3]) print(L[-1])	b. A = [5, 10, 15] A.append(20) print(A)	c. P = list("PYTHON") print(P[1:5:2])
d. L=[10,20,30] print(len(L))	e. L=[5,15,25] print(max(L))	f. L=[5,15,25] print(min(L))
g. L=[1,2] print(L*3)	h. L=[5,10,15] L.append(20) print(L)	i. L=[10,20,30] L.pop() print(L)
j. L=[3,1,2] L.sort() print(L)	k. L=[10,20,30] L.reverse() print(L)	l. L=["Python","Java","C++"] print(L[-1])
m. L=[1,1,2,3,1] print(L.count(1))	n. L=[1,2] M=[3,4] N=L+M print(N)	o. L=[1,2] print((L+L)*2)
3. Difference between List and Dictionary.		
4. Explain keys(), values() and items() methods		
5. Predict the output:-		
p. D={"A":10,"B":20} print(D.keys())	q. D={"Math":95,"CS":99} print(D.values())	r. D={"x":1,"y":2} print(D.items())
s. D={"A":10,"B":20} print(len(D))	t. D={"Python":1,"Java":2} print(D.get("Python"))	u. D={"A":100,"B":200} print(D.get("C"))
v. D={"A":1,"B":2} D.pop("A") print(D)	w. D={"a":10,"b":20} print(min(D))	x. D={"Math":90,"CS":95} print(sum(D.values()))
y. D={"A":1,"B":2} print(D.popitem())	z. D={"x":10,"y":20} print(list(D.values()))	

Biology

1-Differentiate between microsporogenesis and megasporangia.

2-With a neat diagram explain the 7-celled ,8 -nucleated nature of female gametophyte.

3-what is self incompatibility? Why does self pollination not lead to seed formation in self incompatibility.

4-What is triple fusion. Where does it take place? Explain.

5-Write differences between hypocotyl and epicotyl.

6-Name three hormones produced during pregnancy. Explain its roles.

7-construct a flow chart exhibiting sequential events of oogenesis.

8-Draw the Diagram of human sperms, and write the functions of acrosome, mitochondria and nucleus.

9-Write the functions of Corpus luteum, endometrium and fimbriae.

10-Explain the process of fertilization and implantation .

Physics

Holiday Homework Physics Class 12

Physics

1. Complete the allotted questions of chapter 1 and 2 asked previously in board exams in regular copy

2. Make a project file on the allotted topics.

Chapter 1: Electric Charges and Fields (Key Topics: Coulomb's Law, Electric Field, Dipole, Gauss's Law, Flux)

1. State Coulomb's law in vector form. Explain the principle of superposition for charges.

2. Define electric field. Derive the expression for electric field due to a point charge. (Frequently asked derivation)

3. What is an electric dipole? Derive the expression for electric field due to a dipole at axial and equatorial points. (Very common 3/5-mark)

4. Define electric flux. State and explain Gauss's law. What are its applications? (Core concept, often with proof/limitation)

5. Using Gauss's law, derive the electric field due to:

a) An infinitely long straight charged wire.

b) A uniformly charged infinite plane sheet.

c) A thin spherical shell (inside and outside).

6. A point charge +q is placed at the centre of a cube of side l. What is the electric flux through one face? (Classic PYQ)

7. Two point charges q1 and q2 are placed at a distance r. Find the force if the medium has dielectric constant K. How does force change with dielectric?

8. Explain the quantization of charge and conservation of charge. Why is quantization ignored for macroscopic charges?

9. Why can two electric field lines never intersect? Draw field lines for a dipole or two like/opposite charges.

10. Calculate the force between two charges (e.g., 2×10^{-7} C and 3×10^{-7} C at 0.3 m). Or torque on a dipole in uniform field ($\tau = pE \sin\theta$).

11. A charged rod attracts/repels another rod. Deduce the nature of charges.

12. What is the SI unit of electric field and dipole moment? Define 1 Coulomb.

13. For a uniformly charged sphere or shell, find field inside/outside using Gauss's law.

14. Electric field due to multiple charges or dipole moment calculation from torque (e.g., p = 4×10^{-9} Cm at 30° in 5×10^4 N/C field).

15. Discuss properties of electric field lines. Or, why does a parrot on high-voltage line not get shocked significantly?

Chapter 2: Electrostatic Potential and Capacitance (Key Topics: Potential, Capacitors in series/parallel, Energy, Dielectrics)

1. Define electric potential and potential difference. Derive potential due to a point charge.

2. Derive the potential due to an electric dipole at axial and equatorial points.

3. What is equipotential surface? Properties and examples (e.g., for point charge, dipole, plane sheet).

4. Derive the relation between electric field and potential gradient ($E = -dV/dr$).

5. Capacitance of a parallel plate capacitor. Derive expression with/without dielectric. Effect of dielectric on capacitance.

6. Combination of capacitors: Derive equivalent capacitance for series and parallel. (Very frequent numericals)

7. Energy stored in a capacitor. Derive $U = (1/2)CV^2 = Q^2/2C = (1/2)QV$. Compare energy when capacitors are connected

English

1. Read: Deep Water (Flamingo) & Tiger King (Vistas)
Write Its Theme, Characters Sketches, Important questions (long/short answers) and extra 5 Value-based/HOT questions for each lesson.
2. Read 'Keeping Quiet' poem (Flamingo) and write Its theme, poetic devices, important questions (long/short answers) and extra 5 Value-based/HOT questions.

3. Draft the Notice on the topics given below:

A. Sports camp B. Annual Day C. Singing Competition

4. Write any two Letters to Editor from previous years question papers. *Follow CBSE format strictly.

5. Prepare a Speech on "Role of Education in Modern India" or any topic of your choice to speak in the class.

6. Write the definition of the given poetic devices and write 5 examples for each.

a. Simile	b. Metaphor	c. Personification
d. Alliteration	e. Assonance	f. Consonance
g. Imagery	h. Hyperbole	i. Irony
j. Oxymoron	k. Enjambment	l. Repetition
m. Symbolism	n. Rhyme Scheme	o. Onomatopoeia

विषय : हिन्दी

प्रश्न 1. निम्नलिखित विषय पर रचनात्मक लेख लिखिए :

(क) राष्ट्र निर्माण में युवाओं की भूमिका, (ख) प्रकृति से दूर होता हमारा जीवन

(ग) नदियाँ: भारत की जीवन रेखा (घ) इक्कीसवीं सदी में भारत के सामने प्रमुख चुनौतियाँ

प्रश्न 2. निम्नलिखित प्रश्नों के उत्तर दीजिए:

(क) जनसंचार किसे कहते हैं ? यह कितने प्रकार का होता है |

(ख) संपादकीय लेखन क्या है और कौन करता है ?

(ग) उल्टा पिरामिड शैली क्या है ? इसकी विशेषताएँ बताइए |

प्रश्न 3.निम्नलिखित विषय पर फीचर लिखिए :

(क) शहरों में दिन-पर-दिन बढ़ती जनसँख्या की समस्या (ख) आम जन-जीवन को प्रभावित करता विज्ञापन

प्रश्न 4. 'मैं जग-जीवन .....फिरता हूँ !' का भाव और शिल्प सौन्दर्य स्पष्ट कीजिये |

प्रश्न 5.'आत्मपरिचय' कविता में कवि का समाज के साथ कैसा संबंध है ? स्पष्ट कीजिए |

प्रश्न 6. 'दिन जल्दी-जल्दी ढलता है !' का भाव और शिल्प अपने शब्दों में लिखिए |

प्रश्न 7. 'दिन जल्दी-जल्दी ढलता है' में पक्षी घर लौटने के लिए विकल हैं किन्तु कवि में उत्साह नहीं है | ऐसा क्यों ?

प्रश्न 8. 'भक्तिन' पाठ के आधार पर महादेवी वर्मा और भक्तिन के संबंधों पर अपने विचार व्यक्त कीजिये |

प्रश्न 9. महादेवी वर्मा ने भक्तिन के जीवन को चार खण्डों में विभाजित किया है | चारों का उल्लेख कीजिये |

प्रश्न 10. विद्यालय पत्रिका के लिए अपनी रुचि के अनुसार गद्य या पद्य में मौलिक लेखन कीजिए |

प्रश्न 11. किसी हिन्दी दैनिक समाचार पत्र के एक अंक को पढ़कर उसमें से निम्नलिखित प्रकार के 1-1 खबर को एकत्र कर लिखें –

(क) राजनीतिक (ख) आर्थिक (ग) खेल

(घ) कृषि (ङ) अंतरराष्ट्रीय

(प्रत्येक समाचार के स्रोत भी बताएं|)