



DELHI PUBLIC SCHOOL PARADIP REFINERY

SUMMER HOLIDAY ASSIGNMENTS 2018-19

CLASS - XII

ENGLISH

1. Draft a suitable notice in about 50 words for your school notice board informing students about the Magic Show organised by your school in aid of Victims of Earthquake in Nepal. You are Prachi / Pancham captain of the school D.P.S. Paradip Refinery.
2. Write a report in not more than 150 words on cleanliness drive recently held in your school.
3. Write an Article in 150-200 words on the topic "Children learn what they live with."
4. You are Rajni / Rahul, living at E-95, Sector-12, Dwarka. You read an advertisement about short term course in computer Programming by Zee Computer World, Pitampura, Delhi. Write a letter seeking all relevant details of the course.
5. You are Neha / Naresh G-5, Sunder Apartment, Rohini, New Delhi. You bought a LED TV from Sargam Electronics, Pitampura. Write a complaint letter for its non-functioning to the Sales Manager seeking immediate replacement or repair.
6. Read chapter 1 to 10 from the extended reading text 'The Invisible Man'.
(Answer Question No 1 to 5 in your English Copy)

MATHEMATICS

1. Prove that: $\text{Cos}[\tan^{-1}\{\text{Sin}(\cos^{-1}x)\}] = \sqrt{\frac{1+x^2}{2+x^2}}$

2. Prove that : $\text{Tan} \left(\frac{1}{2} \sin^{-1} \frac{3}{4} \right) = \frac{4 - \sqrt{7}}{3}$

3. Prove that : $\tan^{-1} 1 + \tan^{-1} 2 + \tan^{-1} 3 = \pi$

4. If $\tan^{-1} x + \tan^{-1} y = \frac{\pi}{4}$ and $xy < 1$, then find the value of $x + y + xy$

5. Find the value of : $\text{Tan} \left(\frac{1}{2} \cos^{-1} \left(\frac{\sqrt{5}}{3} \right) \right)$

6. If $3 \tan^{-1} x + \cot^{-1} x = \pi$ then find the value of x.

7. Find the value of $\sin^{-1} \left[\text{Cos} \left(\frac{33\pi}{5} \right) \right]$

8. If $\tan^{-1} x + \tan^{-1} y = \frac{4\pi}{5}$, then find the value of $\cot^{-1} x + \cot^{-1} y$

9. Find the value of $\tan \left(\frac{1}{2} \cos^{-1} \frac{2}{\sqrt{5}} \right)$

10. If $\cos^{-1} \left(\frac{x}{2} \right) + \cos^{-1} \left(\frac{y}{3} \right) = \theta$ prove that :

$$9x^2 - 12xy \cos\theta + 4y^2 = 36\sin^2\theta$$

11. If $a > b > c > 0$, prove that $\cot^{-1}\left(\frac{ab+1}{a-b}\right) + \cot^{-1}\left(\frac{bc+1}{b-c}\right) + \cot^{-1}\left(\frac{ac+1}{c-a}\right) = \pi$

PHYSICS

I. ELECTROSTATIC POTENTIAL AND CAPACITANCE.

1. Name the physical quantity whose SI unit is joule coulomb⁻¹.
2. What is the work done in moving a charge 40nC between two points on an equipotential surface?
3. What is meant by equipotential surfaces? draw the shape of the equipotential surface for
(1) an isolated point charge. (2) a uniform electric field.
4. What will be the electrostatic potential energy of the dipole, when placed at right angle to the field?
5. How much work done in moving a 500mC charge between two points on an equipotential surface?
6. A parallel plate capacitor of capacitance C is charged to a potential V. it is then connected to another un charged capacitor having same capacitance. Find out the ratio of the energy stored in the combined system to that stored initially in the single capacitor.
(3 marks)
7. a) Explain, using suitable diagrams , the difference in the behaviour of a
(1) Conductors and (2) dielectrics in the presence of external electric field.
b) Define the term polarization of dielectric and write its relation with susceptibility.
8. What is dielectric? A dielectric slab of thickness t is kept between the plates of a parallel plate capacitor separated by distance d. Derive the expression for the capacitance of the capacitor for $t \ll d$.
9. Obtain the expression for the capacitance of plate capacitor. Three capacitors of capacitances C₁, C₂ and C₃ are connected (i) in series, (ii) in parallel. Show that the energy stored in the series combination is the same as that in the parallel combination.
10. a) Obtain the expression for the potential due to a point charge.
b) Use the above expression to show that the potential due to an electric dipole of length 2a varies as Inverse Square of the distance r of the field point from the center of the dipole.

II. CURRENT ELECTRICITY.

1. Show that 1 ampere is equivalent to a flow of 6.25×10^{18} elementary charges per second.
2. Explain the term drift velocity of electrons in a conductors hence obtain the expression for the current through a conductor in terms of drift velocity.
3. Prove that current density of metallic conductor is directly proportional to the drift speed of electrons.
4. Define relaxation time of electrons in conductors. Explain how it varies with increase in temperature of a conductor. State the relation between resistivity and relaxation time.
5. Define conductivity of a conductor and state its SI units. State and explain the variation of conductivity of a) good conductors b) ionic conductors with temperature.

III. PLAN AND MAKE AN INVESTIGATORY PROJECT FOR CBSE AISSCE 2019 IN PHYSICS.

CHEMISTRY

1. **Explain the mechanism of the following:-**
 - a) Substitution nucleophilic bimolecular
 - b) Substitution nucleophilic unimolecular
 - c) Acid catalysed hydration of alkenes
 - d) Dehydration of alcohol to form alkene
 - e) Dehydration of alcohol to form ether
2. **Explain the following reaction with equation (Write 2 times)**
 - a) Williamson reaction
 - b) Kolbe reaction
 - c) Reimer-Tiemann reaction
 - d) Rosenmund reaction
 - e) Stephen reaction
 - f) Etard reaction
 - g) Gattlerman Koch reaction
 - h) Clemmensen reaction
 - i) Aldol Condensation
 - j) Cannizzaro reaction
3. **Make the investigatory project for CBSE AISSCE 2019.**

BIOLOGY

1. Describe different methods of contraception in Human.
2. What is dihybrid cross? Explain and show cross between Round Yellow and Wrinkle Green seeds of pea.
3. What is test cross? Show test cross.
4. What is codominance? Make the table for Human blood groups.
5. Write short notes on (i) Haemophilia (ii) Sickle cell anaemia (iii) Phenylketonuria (iv) Down's Syndrome (v) Klinefelter's syndrome (vi) Turner's syndrome
6. Write the salient features of Double helix structure of DNA.
7. Describe F Griffith experiment and chemical characterisation of Transforming Principle.
8. Describe Hershey and Chase Experiment and draw diagram.
9. Explain Meselson and Stahl's experiment with diagram.
10. Describe the Process of Transcription in Bacteria and Eukaryotes and draw diagrams.

*** Prepare an INVESTIGATORY PROJECT for Biology Practical.

ECONOMICS

1. Collect the statistical figures of any state of India, the budget amount is spend on or expenditure made by the Govt on:

Health

Education

Transportation

And the amount collected as revenue.

Compare the revenue with expenditure, and the analysis the economic growth of that state.

2. Discuss the circular flow of income in:

(a) Two sector model (b) Three sector model

3. Explain that Domestic territory is bigger than the political frontiers of the country.

4. Describe utility. Explain the law of Diminishing Marginal Utility.

5. What are monotonic preferences? Explain why an indifference curve is:

(a) Downward sloping from left to right

(b) Convex to the origin.

6. Write the different aggregate of National Income.

ACCOUNTANCY

PART-A(Accounting For Partnership Firms)

SL. NO	CHAPTER NAME/TOPIC	ASSINGMENT	Remarks
1	Basic Concept	Practice numerical from illustration Practical(Exercise) question (1.NCERT Books 2.Any Reference Book)	Practice separate exercise question
2	Change in Profit Sharing Ration of Existing Partners	Practice numerical from illustration Practical(Exercise) question (1.NCERT Books 2.Any Reference Book)	Practice separate exercise question
3	Admission of a Partner	Practice numerical from illustration Practical(Exercise) question (1.NCERT Books 2.Any Reference Book)	Practice separate exercise question

COMPUTER SCIENCE

1. Revise the chapters Classes & objects, OOP Concepts, Function Overloading.
2. Explain the different features of OOPs with examples.

3.	<p>The following code is from a game, which generate a set of 4 random numbers. Praful is playing this game, help him to identify the correct option(s) out of the four choices given below as the possible set of such numbers generated from the program code so that he wins the game. Justify your answer.</p> <pre style="font-family: monospace;">#include<iostream.h> #include<stdlib.h> const int LOW=25; void main() { int POINT=5, Number; for(int l=1;l<=4;l++) { Number=LOW+random(POINT); cout<<Number<<":" <<endl; POINT--; } }</pre> <p style="margin-left: 40px;">(i) 29:26:25:28: (ii) 24:28:25:26: (iii) 29:26:24:28: (iv) 29:26:25:26:</p>
<p style="text-align: center;">Find the output of the following</p> <p>4) program:</p> <pre style="font-family: monospace;">#include <iostream.h> #include <ctype.h> void main() { char Text[]= "Mind@Work!"; for (int l=0; Text[l] != '\0 ' ; l++) {if (! isalpha(Text[l])) Text[l]= "**"; else if (isupper (Text[l])) Text[l]=Text[l]+1; else Text[i]=Text[l+1]; } cout<<Text; }</pre>	
<p>(5) Find the output of the following program:</p> <pre style="font-family: monospace;">#include <iostream.h> struct PLAY</pre>	<p>(6): Give the output of the following program:</p> <pre style="font-family: monospace;">#include <iostream.h> struct Pixel</pre>

<pre> { int Score, Bonus; }; void Calculate(PLAY &P, int N=10) {P.Score++; P.Bonus += N; } void main() {PLAY PL={10,15}; Calculate(PL, 5); cout<<PL.Score<<":"<<PL.Bonus<<endl ; Calculate(PL); cout<<PL.Score<<":"<<PL.Bonus<<endl ; Calculate(PL,15); cout<<PL.Score<<":"<<PL.Bonus<<endl ; } </pre>	<pre> { int C, R; }; void Display (Pixel P) { cout << "Col" << P.C << "Row" << P.R << endl; } void main () { Pixel X={40, 50}, Y, Z; Z = X; X . C += 10 ; Y = Z ; Y . C += 10 ; Y . R += 20 ; Z . C -= 15 ; Display (X) ; Display (Y) ; Display (Z) ; } </pre>
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7) Define a class RESORT with the following description:

Private Members:

RNo //Data member to store Room No
Name //Date member to store Customer Name
Charges //Data member to store per day charges
Days //Data member to store number of days of stay
CALC() //A function to calculate and return Amount as

Member functions

CHECKIN() // A function to enter the content RNo, Name,
CHECKOUT() //A function to display the content of RNo, //Name,
Charges,Days and Amount (Amount to be displayed by calling
CALC()function)

BUSINESS STUDY

SL. NO	CHAPTER NAME/TOPIC	ASSINGMENT	Remarks
1	NATURE & SIGNIFICANCE OF MANGEMENT	Read thoroughly the chapter contents & exercise question.(ncret)	Read & write
2	PRINICIPLES OF MANGEMENT	Read thoroughly the chapter contents & exercise question.(ncret)	Read & write
3	MANGEMENT & BUSINESS ENVIORMENT	Read thoroughly the chapter contents & exercise question.(ncret)	Read & write

MUSIC

Practice raag bagesri and raag bhimpalasri, and alankars whichever taught in class till date.

PHYSICAL EDUCATION

Our school is going to organize a District Level Football Tournament in our school ground as well as IOCL Stadium ground.

- Now it is your duty that, you have to plan yourself how to organize the tournament but you have to mention different committees.
- Prepare the knock out fixture of 21 teams.
- You have to mention date, match no and ground name on fixture.