

INTERNATIONAL PUBLIC SCHOOL, BHOPAL
SUMMER ASSIGNMENT 2017-18
CLASS XII

ENGLISH

The Invisible Man. (Novel by H.G.Wells)

Q.1 Answer the following questions in about 120 words.

- a) Who is Griffin and how does he become the Invisible Man?
- b) What sort of man is Doctor Kemp? What role does he play in the story?
- c) How do you see Dr. Cuss ? How did he affect the development of the story?
- d) What impression Mr. Hall and Mrs. Hall form in the minds of the readers?
- e) What changes came in the life of Griffin after he became Invisible?

Q.2 Write the book review of the novel "The Invisible Man" by H.G.Wells.

Q.3 Write all the answers of the assignment given on "The Tiger King" by Kalki.

Q.4 You bought a pair of shoes from Punjab Boot House, New Market Bhopal. When You found to your surprise that both the shoes were meant for your left foot. Now write a letter of complaint to the manager of the Boot House asking for the replacement. Sign yourself as Sunil/Saman.

Q.5 You want to visit Udaipur and two other cities of Rajasthan during summer vacation. Write a letter to the Director, Rajasthan Tourism, Jaipur. Enquiring about at least four things that you consider important before planning your visit. You are John Abraham living at 4, Anand Durai Apartments, Chennai.

PHYSICAL EDUCATION

General Instruction

- A) Complete the project file of any one game of your choice (Basketball, Handball, football, kho-Kho, Athletics, Hockey, Volleyball).
- B) Handmade file is compulsory for all students
- C) You can paste the printed photographs in file
 1. History of game.
 2. Rules and regulation.

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3. Ground/court diagram with dimension.
4. Details of equipment used in that game.
5. Skill and technique used in that game.
6. Terminologies and important tournaments
6. Award related to that game.
7. Details of any five celebrity related to that game.
8. In Athletics (Middle distance running, long distance running, throws)
9. Write benefits of Asanas.
10. Measure resting heart rate and respiratory rate of ten members from family or neighbourhood for three weeks.

COMPUTER SCIENCE

Write case study report on any one of the following Project title.

- 1) Games: 1.1) Hangman Game
1.2) Nibbles_Game
- 2) Quiz : On any topic
- 3) Any Management System (ex. Hospital, Airline, School, Hotel Management)

Case study contains following Topics.

- 1) Introduction about Python.
- 2) Introduction about sql.
- 3) Introduction about Project.
- 4) Flowchart of project.

FINE ART

- Make two traditional art (like Warli, Kalamkari, Madhubani)
- Paintings should be framed properly.

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BIOLOGY

- Design your own Science Magazine illustrating the various career options in Biology. Also mention the different entrance exams for these careers and their placement region.
- Make an investigatory project on any topic as:
 - Drugs addiction
 - Pollution
 - Malnutrition
 - Different diseases
 - Manure and Chemical fertilizers
 - Ebola Virus
 - Biotechnology: DNA Recombination[Note: Topic for project can be of your choice according to CBSE norms.]
- Write questions and model answers from last 10 years question papers of Unit I(Sexual Reproduction).
{Note: Write in Biology register}
- Make biology practical record file.
Experiments
 - Study pollen germination on a slide.
 - Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity. Correlate with the kinds of plants found in them.
 - Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organism.
 - Study the presence of suspended particulate matter in air at two widely different sites.
 - Study the plant population density by quadrat method.
 - Study the plant population frequency by quadrat method.
 - Prepare a temporary mount of onion root tip to study mitosis.
 - Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch.
 - Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc. {Note: Write experiments from GRB}

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PHYSICS

General Instructions:

1. Perform anyone of the given investigatory project with the help of necessary working models.
2. Prepare a project report on the same in printed format.
3. Keep the report for AISSCE -2018 Practical exam.

PROJECTS

1. To study various factors on which the internal resistance/emf of a cell depends.
2. To study variations, in current flowing, in a circuit containing a LDR, because of a variation,
 - (a) in the power of the incandescent lamp, used to illuminate the LDR (Keeping all the lamps at a fixed distance)
 - (b) in the distance of the incandescent lamp of fixed power, used to illuminate the LDR
3. To find the refractive indices of (i) water and (ii) oil (transparent) using a plane mirror, an equiconvex lens and an adjustable object needle.
4. To design an appropriate logic gate combination for a given truth table.
5. To investigate the relation between the ratio of (i) output and input voltages and (ii) number of turns in the secondary coil and primary coil of a self designed transformer.
6. To investigate the dependence, of angle of deviation on angle of incidence, using a hollow prism filled, one by one, with different transparent fluids.
7. To estimate the charge induced on each one of the two identical styro foam (pith) balls suspended in vertical plane by making use of Coulomb's law.
8. To set up a common base transistor circuit and to study its input and output characteristics and to calculate its current gain.

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9. To construct a switch using a transistor and to draw the graph between the input and output voltage and mark the cut-off, saturation and active regions.
10. To study the earth's magnetic field using a tangent galvanometer.

Note book:- One can choose other titles also for the project work but should be syllabus related topics.

MATHEMATICS

- Que1 Construct a 2×3 matrix whose elements $a_{ij} = \frac{1}{2}(i - j)^2$
- Que2 Find the value of x, y, z and a which satisfy the matrix equation
$$\begin{bmatrix} x + 3 & 2y + x \\ z - 1 & 4a - 6 \end{bmatrix} = \begin{bmatrix} 0 & -7 \\ 3 & 2a \end{bmatrix}$$
- Que3 Find the value of x such that $\begin{bmatrix} 1 & 1 & x \\ 0 & 2 & 1 \\ 2 & 1 & 0 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} = 0$
- Que4 If $f(x) = x^2 - 5x + 7$ and $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ find $f(A)$
- Que5 If $A = \begin{bmatrix} 3 & -5 \\ -4 & 2 \end{bmatrix}$ show that $A^2 - 5A - 14I = 0$
- Que6 Express the matrix $\begin{bmatrix} 1 & 3 & 5 \\ -6 & 8 & 3 \\ -4 & 6 & 5 \end{bmatrix}$ as the sum of symmetric and skew symmetric matrix
- Que7 Using elementary transformation find inverse of $\begin{bmatrix} 2 & 0 & -1 \\ 5 & 1 & 0 \\ 0 & 1 & 3 \end{bmatrix}$
- Que8 Using properties of determinants prove that
$$\begin{vmatrix} a + b + 2c & a & b \\ c & b + c + 2a & b \\ c & a & c + a + 2b \end{vmatrix} = 2(a + b + c)^2$$
- Que9 Using properties of determinants prove that
$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1 - x^3)^2$$

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Que10 Using properties of determinants prove that

$$\begin{vmatrix} (b+c)^2 & a^2 & a^2 \\ b^2 & (c+a)^2 & b^2 \\ c^2 & c^2 & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3$$

Que11 Solve for x : $\begin{vmatrix} 3x-8 & 3 & 3 \\ 3 & 3x-8 & 3 \\ 3 & 3 & 3x-8 \end{vmatrix} = 0$

Que12 Find the value of the determinant $\begin{vmatrix} \sqrt{13} + \sqrt{3} & 2\sqrt{5} & \sqrt{5} \\ \sqrt{15} + \sqrt{26} & 5 & \sqrt{10} \\ 3 + \sqrt{65} & \sqrt{15} & 5 \end{vmatrix}$

Que13 If a, b, c are in A.P then find the value of determinant

$$\begin{vmatrix} x+2 & x+3 & x+2a \\ x+3 & x+4 & x+2b \\ x+4 & x+5 & x+2c \end{vmatrix}$$

Que14 Find the adjoint of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 2 \\ 3 & 3 & 4 \end{bmatrix}$

Que15 If $A = \begin{bmatrix} \cos \alpha & -\sin \alpha & 0 \\ \sin \alpha & \cos \alpha & 0 \\ 0 & 0 & 1 \end{bmatrix}$ verify that $A \cdot (\text{Adj. } A) = |A|I$

Que16 Find the inverse of $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$ and verify that $A^{-1}A = I$

Que17 Show that $x = \begin{bmatrix} -8 & 5 \\ 2 & 4 \end{bmatrix}$ satisfies the equation $x^2 + 4x - 42 = 0$. Thus find x^{-1}

Que18 Using matrix method solve the following system of linear equations $x + 2y - 3z = 6$, $2x - y + z = 2$ and $3x + 2y - 2z = 3$

Que19 Using matrix method solve $\frac{2}{x} - \frac{3}{y} + \frac{3}{z} = 10$, $\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 10$, $\frac{3}{x} - \frac{1}{y} + \frac{2}{z} = 13$

Que20 If $A = \begin{bmatrix} -4 & 4 & 4 \\ -7 & 1 & 3 \\ 5 & -3 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 & 1 \\ 1 & -2 & -2 \\ 2 & 1 & 3 \end{bmatrix}$ find AB . Use the result to solve $x - y + z = 4$, $x - 2y - 2z = 9$ and $2x + y + 3z = 1$

Que21 If $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$ find A^{-1} and hence solve $x + 2y + z = 4$, $-x + y + z = 0$, $x - 3y + z = 2$

Que22 The sum of three numbers is 2. If twice the second number is added to the sum of first and third, the sum is 1. By adding second

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and third number to five times the first number we get 6. Find the three numbers by using matrices.

CHEMISTRY

Investigatory Project

- Q.1 To determine which antacid neutralizes stomach most.
- Q.2 To determine the caffeine in tea samples.
- Q.3 To study the presence of insecticide and pesticides in fruits & vegetables.
- Q.4 To prepare Rayon thread from filter paper.
- Q.5 To estimate content in bone ash.
- Q.6 To study setting of cement.
- Q.7 To study the content of dark chocolates
- Q.8 To study the contents in Appy Fizz.
- Q.9 To study the extraction process of bio diesel and bio fuel.

Instructions

1. Front page : Glossy paper (Same for all)
2. Sequence :- Front page, certificate, acknowledgement Index.
3. Project should be of minimum 15-20 pages
4. Result conclusion Bibliography.