

DELHI PUBLIC SCHOOL

GAYA

CLASS – XI ASSIGNMENT-III FOR WINTER VACATION 2017–18

Instruction: – Kindly do your assignment work in assignment copies of the subjects.

Subject : English

1. Your school has just completed the construction of an auditorium. It has been decided by the school that the Inaugural programme of the Auditorium should be a Charity Show. Money collected out of it would be donated to an Old age Home. As the Head Boy of your school, frame a notice for the Notice Board, asking students to sell out the tickets for the Charity Show. Construct the necessary details and write the notice in not more than 50 words.
2. You are Anita/Gautam staying at the ‘Ganga Apartments’, Ashok Vihar, Patna. There is no bus stop within a radius of 2 km from the apartments, causing a lot of inconvenience to the residents. Write a letter to the editor of the Times of India, in about 150 words, drawing attention of the government to this problem of the residents for rectification.
3. You are Arpita/Ashwin. You came across the following extract in a magazine article.

A recently released report cautions the world that if urgent action is not taken to fortify and supplement our food with proper exercise, we will become a nation of under-achievers. It says we suffer from shocking vitamin and mineral deficiency. Our sedentary life also leads to obesity and diseases like diabetes, heart problems etc.

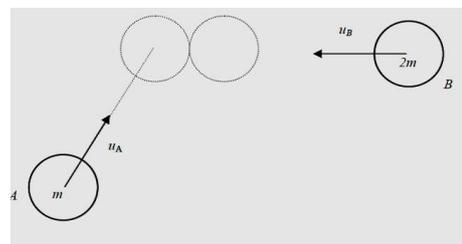
After reading this article, you realized that awareness has to be created among the people the need for health care and the consequences of a sedentary life. Taking ideas given above along with your own ideas, write an article to the editor of a daily in 150–200 words.

Subject : Mathematics

1. A rod AB of length 15cm rests in between two co-ordinate axes in such a way that the end point A lies on $x - axis$ and end point B lies on $y - axis$. A point $p(x, y)$ is taken on the rod in such a way that $AP=6cm$. Show that the locus of P is an ellipse $\frac{x^2}{81} + \frac{y^2}{36} = 1$
2. If P is any point on a hyperbola and N is the foot of the perpendicular from P on the transverse axis, then prove that $\frac{(PN)^2}{(AN)(A'N)} = \frac{b^2}{a^2}$
3. Find the ratio in which the surface $x^2 + y^2 + z^2 = 504$ divides the line segment joining points (12, -4, 8) and (27, -9, 18).

Subject : Physics

1. Find the center of mass of a hollow hemisphere of inner radius b and outer radius a (without base and the curved surfaces are concentric). Your answer must be measured from the concentric center. Given that the center of mass of a uniform hemisphere is located at $3r/8$ from its plane surface, where r is the radius of the hemisphere. Hence, show that center of mass of a thin hollow hemisphere (without base) of radius r is located at $r/2$ from the center of the curved surface.
2. Spheres A and B are moving with initial velocities u_A and u_B respectively (see figure). If B is brought to rest after impact, and the kinetic energy of A is unchanged. Find the coefficient of restitution e .
3. A ship B is steaming on a straight course south-east at a uniform speed of 15 km/h. Another ship A, is a distance of 10 km due north of B and steams at a speed of 12 km/h. Find the course that A must steer in order to get as close to B as possible, and their minimum distance apart.
4. A projectile is fired with speed $(4gh/3)^{1/2}$ from the top of a cliff of height h , and strikes the sea at a horizontal distance $2h$ from the gun. Find the two possible angles of elevation of the gun.



Subject : Chemistry

- (a) At 0°C, the density of a gaseous oxide at 2 bar is the same as that of nitrogen at 5 bar. What is the molecular mass of the oxide?
(b) Write Vander waal equation for n mole of real gas and write units of Vander waal constant 'a' and 'b'.
- (a) Find the mole fraction of 2 m aqueous solution of NaOH.
(b) For a binary solution show that sum of mole fraction of its constituent is one.
- Calculate the value of ΔH° for the reaction
$$2\text{H}_2\text{S}(\text{g}) + 3\text{O}_2(\text{g}) \longrightarrow 2\text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g})$$
The standard enthalpies of formation of $\text{H}_2\text{S}(\text{g})$, $\text{H}_2\text{O}(\text{l})$ + $\text{SO}_2(\text{g})$ are -20.17 , -286 and -296.9 kJ mol⁻¹ respectively.
- For a reaction; $2\text{A}(\text{g}) + \text{B}(\text{g}) \longrightarrow 2\text{D}(\text{g})$
Calculate the value of $\Delta H^\circ_{298} = -10.5$ KJ and $\Delta S^\circ = 44.1$ J
Calculate ΔH°_{298} for the reaction and predict whether the reaction is spontaneous or not.
- (a) What is first law of thermodynamics?
(b) Explain Hess 'slaw of constant heat summation. Write the importance of the law.
- Derive the relation $C_p - C_v = R$ where the symbols have their usual meanings.
- Write the structures of
a) ethyl alcohol b) butane c) propene d) ethanoic acid

Subject : Biology

- Briefly mention the mechanism of action of FSH.
- Name the hormones and their function of Islets of Langerhans and Adrenal Cortex.
- Draw well lebeled diagram of human ear and eye.
- Write the differences between
(a) Actin & Myosin (b) Pectoral & Pelvic girdle (c) Striped & Smooth muscle
- Briefly explain about disorders of muscular and skeletal system in our body.
- What is meant by the term Osmoregulation & Homeostasis?

Subject : Informatics Practices

- Create a Java Desktop application to accept integer value and print factorial in Jtextarea component.
- Write a program in Java to accept integer value in Jtextfield control and display value is prime or not in other Java Component.
- Create Java desktop application to display largest among three Integers.

First Number	<input type="text"/>	
Second Number	<input type="text"/>	
Third Number	<input type="text"/>	
Result	<input type="text"/>	
<input type="button" value="Max"/>	<input type="button" value="Min"/>	<input type="button" value="Exit"/>

- Write a program in Java to print pyramid series in JTextArea component.
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
- Write a program in Java to print pyramid (flyoid triangle) series in JTextArea component.

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