HOLIDAYS HOME WORK (2019-20)

CLASS: XI

The School will reopen on 24.06.2019

ENGLISH

1. You are secretary of the English Literary Association of Tagore Memorial School, Patna. write
   A note for the school notice board, inviting names of those who would like to participate in the proposed inter-house debate, oratorial and elocution contest.
2. As the secretary, Science Club of your school. Write a notice informing students about an Inter-School Science Exhibition and encouraging them to participate.
3. You are Vibha Mehra, a resident of B-Block, Sector 19, NOIDA. The residents feel inconvenience due to frequent digging up of roads by various departments such as electricity, water, sewage, telephone etc. Write a letter to the Editor, The Times of India, New Delhi, highlighting the problem and suggesting remedial measures.
4. Recently you visited the Red Fort and were disturbed by to see the poor maintenance of the monument by the concerned authorities as well as the careless and negligent attitude of the visitors who spoil the buildings by writing their names, messages on the walls, domes, etc. Write a letter to the Editor, The Statesman, expressing concern over this state and the need for awakening a sense of pride and love for such monuments among the common people.
5. You come across news items of migration of talented and highly educated young professionals to the advanced countries for good salaries and perks or due to lack of proper facilities. The news hints the loss to the parent nation int terms of talent and resources. Using these points and your own ideas write an article on 'The Menace of Brain-Drain' in about 150-200 words.
6. To enforce strict discipline in schools and colleges is a great problem these days when cases of indiscipline have become quite frequent. Write an article on the importance of discipline in life in about 150-200 words.
7. Revise the rules of tenses and write five sentences for each tense.

CHEMISTRY

1. State laws of (i) conservation of mass (ii) Gay Lussac's law and (iii) Avogadro's law
2. With suitable example state and explain law of (i) Definite Proportion (ii) Multiple Proportion
3. What mass of SO_2 contains the no. of molecules. Which one present in 85g NH_3.
4. Calculate mass percentage of each element present in blue copper sulphate.
5. Calculate mass of 1 atom of Na.
6. Define mole.
7. How will you express moles of a substance in terms of (i) mass (ii) no. of particles (iii) volume?
8. Calculate mass of followings
   (i) 5.6 moles of $CaCO_3$
   (ii) 0.89 moles of $BaCl_2$
   (iii) 5L of Cl_2 gas at STP
9. Obtain the volume of 100g HCl gas at STP.
10. Calculate no. of moles in
    (i) 50g H_2O
    (ii) 22L CO_2 at STP
    (iii) 11.7×10^{19} atoms of He.

BIOLOGY

1. Learn & Write Botanical names of 10 common plants.
2. Learn & Write 10 Zoological names of common animal.
3. Write classification of pea, onion, potato, & petunia.

4. Write classification of rabbit, pigeon, fish, cockroach.
5. Collect 5 common plant part or herbs and prepare their herbarium.

PHYSICS

1. Learn & Practice for all the dimensional formulae of Mechanics from NCERT book.
2. Fill in the blanks by suitable conversion of units
   a) 1 Kgm^2s^{-2}=_____gcm^2s^{-2}
   b) 1m =_____light year
   c) $3m/s^2$ =_____km/s^2
   d) $G=6.67x10^{-11}\ Nm^2/kg^2$ = _____$(cm^2)\ s^{-2}g^{-1}$
3. The length, breadth and thickness of a rectangular sheet of metal are 4.234m,1.005m and 2.01cm respectively. give the area and volume of the sheet to correct significant figure.
4. A physical quantity P is related to four observations a, b, c and d as follows
   $P=a^3b^2/(\sqrt{cd})$
   The % error of measurements in a, b, c and d are P%, 3%, 4% and 2% respectively. what is the percentage error in the quantity P? if the value of P calculated using the above relation turn out to be 3.763, to what value should you round off the result?
5. Which of the following ratios express pressure?
   a) Force/Area
   b) Energy/Volume
   c) Energy/Area
   d) Force/Volume

POLTICAL SCIENCE

1. Write a report on 17^{th} Lok Sabha Elections.
2. Study the Cartoon given in (PART-A) Book (Ch 1 to 5).
3. Make a list of Fundamental Rights and explain in Register.
4. Read Lesson-1 (Constitution, why and how) and find general questions.

BASIC CONCEPT OF TRIGONOMETRIC FUNCTIONS

CLASS XI
Subject Maths

Relation between Trigonometric functions

① $\sin\theta \operatorname{cosec}\theta = 1$ ② $\cos\theta \cdot \sec\theta = 1$ ③ $\tan\theta \cot\theta = 1$

④ $\sin^2\theta + \cos^2\theta = 1$ ⑤ $\sec^2\theta = 1 + \tan^2\theta$ ⑥ $\operatorname{cosec}^2\theta = 1 + \cot^2\theta$

Values of T-ratios:

θ	0°	30°	45°	60°	90°
$\sin\theta$	0	$1/2$	$1/\sqrt{2}$	$\sqrt{3}/2$	1
$\cos\theta$	1	$\sqrt{3}/2$	$1/\sqrt{2}$	$1/2$	0
$\tan\theta$	0	$1/\sqrt{3}$	1	$\sqrt{3}$	N.D.
$\operatorname{cosec}\theta$	N.D	2	$\sqrt{2}$	$2/\sqrt{3}$	1
$\sec\theta$	1	$2/\sqrt{3}$	$\sqrt{2}$	2	N.D.
$\cot\theta$	N.D	$\sqrt{3}$	1	$1/\sqrt{3}$	0

Relation between degree and radian

$$1 \text{ radian or } 1^c = \frac{\pi}{180^\circ} \times \text{degree measurement}$$

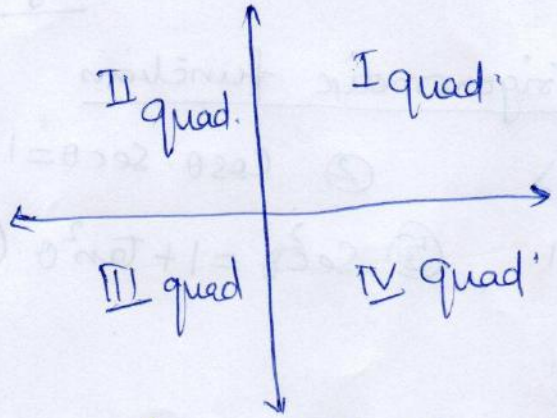
$$1^\circ = \frac{180^\circ}{\pi} \times \text{radian measurement}$$

1° = 60 minute $= 60'$ $\quad$ 1 min$(1') = 60$ sec. $= 60''$

Important degree Convert into radian

degree	radian		
30°	$\pi/6$	120°	$2\pi/3$
45°	$\pi/4$	180°	π
60°	$\pi/3$	270°	$3\pi/2$
90°	$\pi/2$	360°	2π

Position of Trigonometrical ratio's in quadrant



I quad. $(0 \le \theta \le \frac{\pi}{2})$ All are +ve.

II quad. $(\frac{\pi}{2} \le \theta \le \pi)$ $\sin\theta$ and $\operatorname{cosec}\theta$ are +ve

III quad. $(\pi \le \theta \le \frac{3\pi}{2})$ $\tan\theta$ and $\cot\theta$ are +ve

IV quad. $(\frac{3\pi}{2} \le \theta \le 2\pi)$ $\cos\theta$ and $\sec\theta$ are +ve.

Each rotation to change quadrant is of $\frac{\pi}{2}$ (90°)

$\sin(-\theta) = -\sin\theta$

$\cos(-\theta) = \cos\theta$

$\tan(-\theta) = -\tan\theta$

$\operatorname{cosec}(-\theta) = \operatorname{cosec}\theta$

$\sec(-\theta) = \sec\theta$

$\cot(-\theta) = -\cot\theta$.

$+\theta$ means rotation anticlockwise and

$-\theta$ means rotation clockwise.

Formulae for T-ratios

For any two angles A and B.

(1) $\sin(A+B) = \sin A\cos B + \cos A \sin B$

(2) $\sin(A-B) = \sin A\cos B - \cos A \sin B$

(3) $\cos(A+B) = \cos A \cos B - \sin A \sin B$

(4) $\cos(A-B) = \cos A \cos B + \sin A \sin B$

(5) $\tan(A+B) = \dfrac{\tan A + \tan B}{1 - \tan A \tan B}$

(6) $\tan(A-B) = \dfrac{\tan A - \tan B}{1 + \tan A \tan B}$

(7) $\cot(A+B) = \dfrac{\cot A \cot B - 1}{\cot B + \cot A}$

(8) $\cot(A-B) = \dfrac{\cot A \cot B + 1}{\cot B - \cot A}$

If $A = B$

(9) $\sin 2A = 2 \sin A \cos A = \dfrac{2 \tan A}{1 + \tan^2 A}$

(10) $\cos 2A = 2\cos^2 A - 1 = 1 - 2\sin^2 A = \cos^2 A - \sin^2 A$
$= \dfrac{1 - \tan^2 A}{1 + \tan^2 A}$

(11) $\tan 2A = \dfrac{2 \tan A}{1 - \tan^2 A}$

(12) $\sin 3A = 3 \sin A - 4 \sin^3 A$

(13) $\cos 3A = 4 \cos^3 A - 3 \cos A$

(14) $\tan 3A = \dfrac{3 \tan A - \tan^3 A}{1 - 3 \tan^2 A}$

(15) $\sin A + \sin B = 2 \sin \dfrac{A+B}{2} \cos \dfrac{A-B}{2}$

(16) $\sin A - \sin B = 2 \cos \dfrac{A+B}{2} \sin \dfrac{A-B}{2}$

(17) $\cos A + \cos B = 2 \cos \dfrac{A+B}{2} \cos \dfrac{A-B}{2}$

(18) $\cos A - \cos B = -2 \sin \dfrac{A+B}{2} \sin \dfrac{A-B}{2} = 2 \sin \dfrac{A+B}{2} \sin \dfrac{B-A}{2}$

(19) $\tan A + \tan B = \tan(A+B)(1 - \tan A \tan B)$

(20) $\sin \dfrac{A}{2} = \pm \sqrt{\dfrac{1 - \cos A}{2}}$

(21) $\cos \dfrac{A}{2} = \pm \sqrt{\dfrac{1 + \cos A}{2}}$

[± sign depends on angle lies in which quad]

(22) $\tan A/2 = \pm \sqrt{\dfrac{1 + \cos A}{1 - \cos A}}$

(24) $\sin^2 A - \sin^2 B = \sin(A+B) \sin(A-B)$

(25) $\cos^2 B - \cos^2 A = \sin(A+B) \sin(A-B)$

(26) $\cos^2 A - \sin^2 B = \cos(A+B) \cos(A-B)$

(27) $\cos^2 B - \sin^2 A = \cos(A+B) \cos(A-B)$