HIM ACADEMY PUBLIC SCHOOL
Hira Nagar, Hamirpur (H.P.)-177001 Ph.:(01972)-222829, 223428
Website : WWW.haps.co.in e.mail: haps 1998@gmail.com
Affiliated to H.P. Board of School Education, Dharamshala School Code: 1573

10+2 (Non-Medical)

Entrance Test (Sample Question Paper)

[Section - A (Physics)]

Time : 30 min. **Max. Marks - 20**

1. Write the dimensional formula of Energy. [1]

2. Plot position-time graph for positive acceleration. [1]

3. Define coplaner vectors. [1]

4. What is meant by position vector. [1]

5. Why does a gun recoil back when it is being fired? [1]

6. What is meant by angle of friction? [1]

7. Define elastic collision. [1]

8. State Hooke's law. [1]

9. Define terminal velocity. [1]

10. What is adiabatic process? [1]

11. What is meant by periodic motion. [2]

12. State work energy Theorem. [2]

13. What is Doppler effect. [2]

14. Define angle of contact. On what factors it depends? [2]

15. If a car at rest accelerates unformly to a speed of 144 km/h in 20s. What is the distance covered it? [2]

[Section - B (Chemistry)]

Time : 30 min. **Max. Marks - 20**

1. What are canal rays? [1]

2. Write the electronic configuration of Cu. [1]

3. Define co-ordinate bond with example. [1]

4. Write the hybridisation in SF_6 molecule. [1]

5. What is the hybridisation of first and third c-atom in $CH_2=C=CH_2$? [1]

6. Define isoelectronic species. [1]

7. Define dipole moment. [1]

8. Draw the resonating structure of following molecule :

a) CO_3^{2-} b) NO_2 [1]

9. Bond angle in NH_3 is more than PH_3. Give reason. [1]

10. State Gay Lussac's law. [1]

11. Write the following name of reaction:

a) Friedel craft alkylation. b) Markownikov's Rule [2]

12. Draw the Molecular orbital diagram of O_2^{2-} molecule and also write its bond order and magnetic character. [2]

13. Trans-But-2-ene has higher melting point than Cis-But-2-ene. Explain. [2]

14. Explain the shape of H_2O molecule on the basis of VSEPR Theory. [2]

15.A 100 watt bulb emits electromagnetic light of wavelength 400nm. Calculate the energy of one photon. [2]

.....

[Section - C (Maths)]

Time : 30 min. **Max. Marks - 20**

.....

[Section - A]

1. Find the multiplication Inverse of $-i$.

2. Find x if $\frac{1}{6!}+\frac{1}{7!}=\frac{x}{8!}$.

3. Evaluate : $\lim_{x\to 1}\frac{x^{\frac{1}{3}}-1}{x^{\frac{1}{6}}-1}$.

4. Find the derivative of $(x-1)(x-2)$. [4×2=8]

[Section - B]

5. Find the 4th term in the expansion of $(x-2y)^{12}$.

6. If $\cup$ = {1, 2, 3, 4, 5, 6, 7, 8, 9}, A={2, 4, 6, 8}. B = {2, 3, 5, 7}. Find $(A\cap B)'$.

7. Convert $40^\circ 20'$ into radian measure.

8. Find the general solution for Cos $4x$ = Cos $2x$. [4×3=12]

.....

[Section - D (English)]

Time : 30 min. **Max. Marks - 20**

.....

1. Read the given passage carefully and answer the questions that follows:

1. What is new yesterday, becomes obsolete today. Everything moves at a fast pace. But strangely enough, students strikes have not changed a wee bit. May be because of the fact that out of about 3,000 students in a college, only handful come equipped with books, notebooks or a pen.
2. The only perceptible change is that a majority of them come on expensive motorbikes and quite a few carry mobiles in their hands.
3. Small wonder that whenever any small group of so-called student leaders, persuades these time-pass students to go on a strike, may be on as flimsy issue as that of the size of a samosa in the canteen, they readily oblige.

4. In fact, just a few "hai hai" calls are sufficient to gather a number of giggling groups that soon turn into a mob.
5. Let us have a closer look at the student agitation that has rocked city colleges now for weeks.
6. A recent fee hike and alleged disparity in fund collection among local colleges affiliated to Panjab University is reported to be the "immediate cause".
7. Its immediacy can well be gauged from the fact that the first instalment of the hiked fee was deposited by students a few months ago without a moan!
8. Waste of valuable teaching time apart, a few ill-advised students went to resorting self-inflicting violence for the "cause"! All this led to a volatile situation that embarrassed the university authorities, being the venue of the strike.
9. The situation eased temporarily after the intervention of politicians, who met the authorities that be and issued high sounding statements in favour of the student community.
10. Fund, fee or samosa, what ever the issue, the student community should realise that while losing valuable paid learning time, they cannot justify their demand for reducing the alleged financial fee/fund hike.
11. Before asking for concessions or fee-fund reduction, they should grab what they have already paid for. It is high time that they ask for more teaching hours than what is stipulated for them. Paying for 100 lectures and asking for 65 is simply a ridiculous demand and not worth a strike.
12. Until Indian parents stop paying, at times through their nose, for the higher education of their children, who should start learning only after earning themselves, the situation, perhaps, will not change.

(A) Read the above given passage carefully and answer the following questions:

a) What strange thing does the author mention in the first paragraph? [1]

b) What does the author mean by "time-pass" students? [2]

c) How do students turn into a striking mob? [2]

d) How did this strike adversely affect the student and the university authorities? [2]

(B) Find words from the above passage which mean the same as:

(i) weak and fragile (Para 2-3)

(ii) a great differemce (Para 5-6)

(iii) specified or fixed (Para 10-11) [3]

Q,2 Write a paragraph on any of the following topics :

a) Evils of smoking

b) Population Explosion

c) Rise in prices of essential commodities [10]