



# HIM ACADEMY PUBLIC SCHOOL

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Affiliated to H.P. Board of School Education, Dharamshala

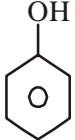
School Code: 1573

## Entrance Test - 2018 Class - 10+2 (Chemistry) [Set - I]


**Time : 30 min.**

**Max. Marks - 20**

- An atomic orbital has  $n = 3$ . Write all possible values of Azimuthal and magnetic quantum numbers? [1]
- Write the general electronic configuration of p-block elements. [1]
- What are isoelectronic species? [1]
- Write the bond angle and geometry of  $\text{CO}_2$  molecule. [1]
- Write the I.U.P.A.C. name of the given organic compound  

$$\text{CH}_3 - \text{CH}_2 - \underset{\text{Cl}}{\text{CH}} - \text{CH}_2 - \text{CH}_2 - \text{CHO}$$
 [1]
- What are the hybridisation state of each carbon atom in the following compounds?  
 (a)  $\text{CH}_2 = \text{CH}_2 - \text{CN}$       (b)  $\text{CH}_2 = \text{C} = \text{CH}_2$  [1]
- Draw the resonating structures of the following organic compound.  
 (i)  $\text{CH}_3\text{COOH}$       (ii)  [1]
- Convert Acetylene to Benzene. [1]
- Out of  $\text{Na}^+$  and  $\text{Na}$  which is having larger atomic size and why? [1]
- What is Heisenberg's uncertainty Principal. [1]

- Draw the Molecular orbital diagram of  $\text{N}_2$  molecule. Calculate its bond order and magnetic character. [2]
- What is Markownikoff's rule? Explain with the help of suitable example. [2]
- Explain the following name reactions :  
 (i) Wurtz's reaction      (ii) Friedal Craft's alkylation. [2]
- Explain the geometry of ammonia with the help of VSEPR Theory. [2]
- Yellow light emitted from a sodium lamp has a wavelength ( $\lambda$ ) of 580nm. Calculate the frequency and wave number of this light. [2]



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**Entrance Test - 2018**  
**Class - 10+2 (Maths)**


**Time : 30 min. [Set - I] Max. Marks : 20**

**[Section - A]**

- Write  $Z = i^{-35}$  in the form of  $a + ib$ .
- Find  $x$  if  $\frac{1}{6!} + \frac{1}{7!} = \frac{x}{8!}$ .
- Evaluate  $\lim_{x \rightarrow 0} \frac{1 - \cos 8x}{x^2}$ .
- Find the derivative of  $y = \operatorname{Cosec}(\sin^2 x) \cdot e^x$ . [4×2=8]

**[Section - B]**

- Using Binomial Theorem find  $(101)^4$ .
- Solve  $\sqrt{5}x^2 + x + \sqrt{5} = 0$ .
- Find the value of  $\operatorname{Cosec}(-1410^\circ)$ .
- Find general sol of  $\sin 2x + \cos x = 0$ . [4×3=12]

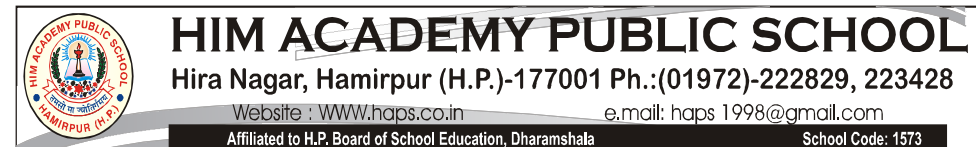


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**Entrance Test - 2018**  
**Class - 10+2 (Biology)**

**Time : 30 min. [Set - I] Max. Marks : 20**

- What is Taxonomy? [1]
- What are Lichens? [1]
- What is the reserve food material present in 'Brown algae'? [1]
- Which organelle is known as 'Kitchen of the cell'? [1]
- Define Isogamous condition of gametes? [1]
- What is meant by Ligament? [1]
- What is osmosis? [1]
- What are True fruits? [1]
- Define Glomerular filtration rate? [1]
- Which Hormone is called 'Flight and fight Hormone'? [1]
- Why our Heart is called 'Myogenic Heart'? [2]
- Draw the diagram of Neuron? [2]
- Define term : (1) species (2) Order [2]
- Explain how peptide bond is formed? [2]
- Why is mitosis called equational division? [2]



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## Entrance Test - 2018 Class - 10+2 (Physics)

**Time : 30 min.**

**[Set - I]**

**Max. Marks : 20**

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1. Write the dimensional formula of pressure. [1]
  2. Plot position-time graph for positive acceleration. [1]
  3. Define coplaner vectors. [1]
  4. What is meant by resultant 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 Kinetic energy. [1]
  8. State Hooke's law. [1]
  9. Define terminal velocity. [1]
  10. What is adiabatic process? [1]
  11. What is meant by resonance. [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 uniformly to a speed of 144 km/h in 20s. What is the distance covered it? [2]

**Q.2 Write a paragraph on any one of the following in about 200-250 words:-**

(i) Importance of newspaper

(ii) Too much television is bad for children. Unfortunately, parents find it very hard to wean their children away from the idiot box. Write an article for a local newspaper emphasising the need to monitor exposure to television. you are Rashmi Thakur of XI commerce.

[10]

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**Entrance Test - 2018**  
**Class - 10+2 (English)**

**Time : 30 min.**

**[Set - I]**

**Max. Marks : 20**

**1. Read the following passage and answer the questions that follow:-**

1. 'Look, look there! A rhino!' I squeal. 'It's probably just another rock,' teases my husband and he's right so far. We're driving in South Africa's Ithala Game Reserve and geology has conspired to craft a profusion of rhino-like rocks strewn amongst tall, golden grass.
2. This time, however, I am convinced I spy a curved horn protruding from the 'rock' and we dig out the binoculars. Sure enough, there, in the shade of a thorn tree, is a large white rhino. Flicking his ears against exasperating insects, he's lying on his side in the heat of the afternoon. Elated, we page through our Field Guide to Mammals for facts and grin at the pleasure of spotting him aided. We'd previously experienced African safaris in remote private camps— the luxury kind where elegant meals are provided, game drives are expertly guided and guests are feted with sundowners from mobile bars in the bush. But the question I asked myself as I began to plan this latest trip to Africa was — Can one have an equally enjoyable safari experience on a fraction of the budget? Self-cater, self-drive and self-guide was a daunting concept, but once I was determined to explore.
3. Deciding on a destination for our do it yourself (DIY) safari was the easiest part.

It had to be South Africa, home to an abundance of accessible national parks, and game reserves.

4. Well-maintained and clearly signed roads, and reasonable petrol costs, combine to make it a great fly-drive destination.
5. The majority of larger parks and reserves are managed by South African national Parks or Ezemveko KZN Wildlife and both organizations maintain informative websites detailing accommodation options.
6. Keen to experience South Africa's natural diversity to the fullest, I selected five parks in which we would spend 15 nights. Most parks have one or more main rest camps with camping facilities as well as a range of permanent accommodation.
7. Mpila Camp in Hluhluwelmfolozi Park was an enjoyable experience. We chose the safari tents over the chalets and found the tents very similar in design to those used by the expensive private camps. but don't let the word 'tent' mislead you. These are full height tents built on raised decks, furnished with sturdy beds, tables and chairs and a well designed en suite bathroom. There are no frills, but given the price we paid we were happy to forego these touches.
8. As Mpila is one of few camps to offer no dining facilities, we made full use of the other options. the deck outside our tent led to an open sided kitchenette and overlooked a clearing with an outdoor braai (barbecue). As we cooked and ate, we watched nyala and warthog forage only a few meters away and listened to birds calling to each other in the trees overhead.

9. Our chalets and bungalows at Addo Elephant National park, Ithala Game reserve and Kruger National Park were similarly appealing. Though different in design and layout, each offered a spacious bedroom, clean bathroom, well-equipped kitchen and braai.
10. Of course, there can be downsides to the self-catering route. Discovering at Mpila that we had lost our matches was significantly more upsetting when the camp shop was closed and the sun had long set. However, a plea to a neighbouring family quickly produced a spare box and an excuse to swap stories about our sighting and experiences.

#### Questions :-

- a) 1. What had their experience been in their earlier safari expeditions? How was this one going to be different?
2. What facilitated their expedition?
3. What were the facilities available in the tents?
4. What kind of difficulties did they face because of the self-catering route?

[2+1+2+2]

#### b) Pick out the words / phrases from the passage which mean the same as :

- (a) schemed; plotted (para 1)
- (b) abundance (para 1)
- (c) annoying; irritating (para 2)

[3]