



## +2 (Non-Medical) Admission Test (Sample Question Paper)

(English)

Time : 30 min.

Marks : 20

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

1. I wish to declare with all earnestness that I do not want any religious ceremonies performed for me after my death. I do not believe in any such ceremonies and to submit to them, even as a matter of form, would be hypocrisy and an attempt to delude ourselves and others.
2. When I die, I should like my body to be cremated. If I die in a foreign country, my body should be cremated there and my ashes sent to Allahabad. A small handful of these ashes should be thrown into the Ganga and the major portion of them disposed of in the manner indicated below. No part of these ashes should be retained or preserved .
3. My desire to have a handful of my ashes thrown into the Ganga at Allahabad has no religious significance, so far as I am concerned. I have no religious sentiment in the matter. I have been attached to the Ganga and the Jamuna rivers in Allahabad ever since my childhood and as I have grown older, this attachment has also grown. I have watched their varying moods as the seasons changed, and have often thought of the history and myth and tradition and song and story that become attached to them through long ages and become part of their flowing waters.
4. The Ganga especially is the river of India, beloved of her people. Around which are intertwined her racial memories, her hopes and fears, her songs of triumph, her victories and her defeats. She has been a symbol of India's age- long culture and civilization , ever changing , ever flowing and yet ever the same Ganga. She reminds me of the snow - covered peaks and deep valleys of the Himalayas, which I have loved so much and of the rich and the vast plains below, where my life and work have been cast. Smiling and dancing in the morning sunlight, and dark and gloomy and full of mystery as the evening shadow fall, a narrow slow and graceful stream in winter and a vast roaring thing during the monsoon, broad- bosomed almost as the sea and with something of the sea's power to destroy. The Ganga has been to me a symbol and a memory of the past of India, running into the present and flowing on to the great ocean of the future. And though I have discarded much of the past traditions and customs and am anxious that India should rid herself of all the shackles that bind and constrain her and divide her people and suppress vast numbers of them, and prevent the free development of the body and the spirit; though I seek all this yet I do not wish to cut myself off from the past completely. I am proud of the great inheritance that has been and is ours and I am conscious that I too, like all of us, am a link in that claim I would not break, for I treasure it and seek inspiration from it. And as witness of desire of mine and as my last homage to India's cultural inheritance, I am making this request that a handful of my ashes be thrown into the Ganga at Allahabad to be carried to the great ocean that washes India's shore.
5. The major portion of my ashes should, however, be disposed of otherwise. I want these to be carried high up into the air in an aeroplane and scattered from that height over the fields where the peasants of India toil so that they might mingle with the dust and soil of India and become an indistinguishable part of India.

**Questions:-**

- 1) Why does not Nehru want any religious ceremonies performed for him after his death ? [1]
- 2) Why does Nehru want a handful of his ashes be thrown into the Ganga ? [1]
- 3) What is the symbol of the Ganga to Nehru ? [1]
- 4) What does Nehru say about India's cultural inheritance ? [2]
- 5) In what way does Nehru want the major portion of his ashes be disposed of ? [2]
- 6) Find from the passage words that mean the same as following :
  - i) Burn a deadbody (para 2)
  - ii) Chains used for fastening a prisoner (para 4)
  - iii) Become one with something (para 5) [3]

**Q.2** Write down a paragraph on one of the following topics in about 200-225 words:-

1. Population Explosion.
2. Newspapers has become indispensable. We can do without morning tea but we cannot do without Newspaper. Keeping the importance of newspapers in view write a paragraph on the topic "Value of Newspaper".

[10]

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**(Physics)**

**Time : 30 min.**

**Marks : 20**

- Q.1** Define work [1]
- Q.2** Define non-uniform velocity. [1]
- Q.3** Draw the position-time graph for an object in uniform motion. [1]
- Q.4** A body at rest attains a velocity of  $50\text{ms}^{-1}$  in 10s. Calculate its acceleration. [1]
- Q.5** Define equal vectors. [1]
- Q.6** Define inertia of motion. [1]
- Q.7** Can a body have energy without momentum? [1]
- Q.8** Define one newton. [1]
- Q.9** State Newton's law of gravitation. [1]
- Q.10** Define normal stress. [1]
- Q.11** On what factors does coefficient of friction depend ? [2]
- Q.12** No force is required to move a body with constant velocity. Explain. [2]
- Q.13** Define modulus of elasticity. Give its units and types. [2]
- Q.14** Why does not simple pendulum vibrate at the centre of the earth ? [2]
- Q.15** Find the kinetic energy of a bus of mass 10,000kg moving with a speed of 30m/s. [2]

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**(Chemistry)**

**Time : 30 min.**

**Marks : 20**

- Q.1** An atomic orbital has  $n = 3$ . What are the possible values of  $l$  and  $m_l$ ? [1]
- Q.2** Which of the following orbitals are possible ? [1]  
 $1p, 2s, 2p$  and  $3f$
- Q.3** Write the general electronic configuration of  $s$ -block elements. [1]
- Q.4** What are isoelectronic species ? [1]
- Q.5** Define octet rule. [1]
- Q.6** Which hybrid orbitals are used by carbon atoms in the following molecules ? [1]  
*a)*  $\text{CH}_3 - \text{CH}_3$                       *b)*  $\text{CH}_3 - \text{CH} = \text{CH}_2$
- Q.7** Write the IUPAC name of the compound. [1]



- Q.8** Define inductive effect. [1]
- Q.9** Convert Ethyne to benzene. [1]
- Q.10** Write chemical equation for the combustion reaction of butane. [1]
- Q.11** Write IUPAC names of the products obtained by the ozonolysis of Pent-2-ene. [2]

- Q.12** How many  $\sigma$  and  $\pi$  bonds are present in  $C_6H_6$  (Benzene). [2]
- Q.13** Calculate the bond order of  $N_2$  and  $O_2$  molecule. [2]
- Q.14** Explain why cations are smaller and anions larger in radii than their parent atoms ? [2]
- Q.15** Calculate the frequency and wavelength of a light wave whose time period is  $2.0 \times 10^{-10}$ s. [2]

**(Mathematics)**

**Time : 30 min.**

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1. If  $Z_1 = a + ib$  and  $Z_2 = c + id$ , then  $Z_1 + Z_2 = \dots\dots\dots$  [1]
2.  $7! - 5! = \dots\dots\dots$  [1]
3. The number of permutation of  $n$  different things taken  $r$  at a time, where repetition is not allowed, is  $\dots\dots\dots$  [1]
4. The coefficients of the binomial expansions are arranged in an array. This array is called  $\dots\dots\dots$  [1]
5.  $\lim_{x \rightarrow 0} \left( \frac{\sin x}{x} \right) = \dots\dots\dots$  [1]
6.  $\frac{d}{dx} (\cos x) = \dots\dots\dots$  [1]
7.  $\frac{d}{dx} \left[ \frac{ax+b}{cx+d} \right] = \dots\dots\dots$  [2]
8.  $\lim_{x \rightarrow 4} \left[ \frac{4x+3}{x-2} \right] = \dots\dots\dots$  [2]
9. Using Binomial theorem, evaluate ;  $(101)^4 = \dots\dots\dots$  [2]
10.  $C(n,3) = C(n,4)$  find  $C(n,2)$ . [2]
11. Find;  $P(n,r)$  if  $n=4, r=2$ . [2]
12. Express in the form of  $a + ib$ ;  
 $-(1-i) - (-1 + 6i)$ . [2]
13. Solve :-  $2x^2 + x + 1 = 0$  [2]



**+2 (Medical)**

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**(Biology)**

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- Q.1** Who had given three kingdom system of classification? [1]
- Q.2** What are viroids ? [1]
- Q.3** Name any two organelles having double membranous sac ? [1]
- Q.4** Write the modern equation of photosynthesis. [1]
- Q.5** Why kreb's cycle is called as TCA cycle. [1]
- Q.6** What is succus entericus ? [1]
- Q.7** Give the dental formula of human beings. [1]
- Q.8** Name the instrument used for hearing heartbeats. [1]
- Q.9** Name the universal photosynthetic pigment. [1]
- Q.10** How many ATP and NADPH required for the synthesis of a molecule of glucose in  $C_4$  plants ? [1]
- Q.11** Explain why the walls of ventricles are much thicker than atria ? [2]
- Q.12** i) What are red tides ? [2]
- ii) Which type of ribosomes are present in mitochondria ?
- Q.13** What is kranz anatomy ? [2]
- Q.14** i) Write the name of bile pigments. [2]
- ii) Why intestinal columnar epithelium bears microvilli ?
- Q.15** What do you mean by RQ ? Give the value of R.Q for organic acids. [2]