

1. निम्नलिखित में से किन्हीं चार पर लगभग 300 शब्दों (प्रत्येक) में निबंध लिखिए :

Write essays on any *four* of the following in about 300 words each : $20 \times 4 = 80$

- 1.(a) भारत में शहरीकरण और बड़े शहरों का उदय

✓ Urbanisation and the rise of mega-cities in India

- 1.(b) लोकतंत्र को मजबूत करने में नागरिक समाज की भूमिका

✗ The role of Civil Society in strengthening democracy

- 1.(c) भारत में लैंगिक न्याय और कानूनी सुधार

✓ Gender justice and legal reforms in India

- 1.(d) अर्थव्यवस्था को बढ़ावा देने में स्टार्टअप और उद्यमिता की भूमिका

✓ Role of startups and entrepreneurship in fostering economy

- 1.(e) बाहरी खतरों के बदलते परिवेश के आलोक में भारत की रणनीति की समीक्षा

✓ Reviewing India's defence strategy in the light of evolving external threat

- 1.(f) भारत की समुद्री रणनीति और हिंद महासागर क्षेत्र में बढ़ता महत्व

✓ India's maritime strategy and growing importance in the Indian Ocean World

2. Write arguments for and against each of the following statements : $20 \times 2 = 40$

- 2.(a) The concept of work-life balance is a myth.

- 2.(b) Gene editing is a threat to human identity.

3. Write reports on the following in about 200 words each. Do not mention any name or address in the reports. Use XYZ/ABC, if needed. $10 \times 2 = 20$

- 3.(a) Adoption of electric vehicles and emission control technology.

- 3.(b) Impact of Genetically-Modified Foods on health and environment.

4. Attempt a précis of the given passage in one-third of its length. Write, as far as possible, in your own words. The précis should be attempted only on the précis sheets.

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Life then is the dynamic play of a universal Force, a Force in which mental consciousness and nervous vitality are in some form or at least in their principle always inherent and therefore they appear and organize themselves in our world in the forms of Matter. The life-play of this Force manifests itself as an interchange of stimulation and response to stimulation between the different forms it has built up and in which it keeps up its constant dynamic pulsation; each form is constantly taking into itself and giving out again the breath and energy of the common Force; each form feeds upon that and nourishes itself with it by various means, whether indirectly by taking in other forms in which the energy is stored or directly by absorbing the dynamic discharges it receives from outside. All this is the play of life; but it is chiefly recognizable to us where the organization of it is sufficient for us to perceive its more outward and complex movements and especially where it partakes of the nervous type of vital energy which belongs to our own organization. It is for this reason that we are ready enough to admit life in the plant because obvious phenomena of life are there — and this becomes still easier if it can be shown that it manifests symptoms of nervousity and has a vital system not very different from our own — but are unwilling to recognize it in the metal and the earth and the chemical atom where these phenomenal developments can with difficulty be detected or do not apparently at all exist.

Is there any justification for elevating this distinction into an essential difference? What, for instance, is the difference between life in ourselves and life in the plant? We see that they differ, first in our possession of the power of locomotion which has evidently nothing to do with the essence of vitality, and, secondly, in our possession of conscious sensation which is, so far as we know, not yet evolved in the plant. Our nervous responses are largely, though by no means always or in their entirety, attended with the mental response of conscious sensation, they have a value to the mind as well as to the nerve-system and the body agitated by the nervous action. In the plant it would seem that there are symptoms of nervous sensation, including those which would be in us rendered as pleasure and pain, waking and sleep, exhilaration, dullness and fatigue, and the body is inwardly agitated by the nervous action, but there is no sign of the actual presence of mentally conscious sensation. But sensation is sensation whether mentally conscious or vitally sensitive, and sensation is a form of consciousness. (456 words)

8. Read the following passage and answer the questions that follow :

4×5=20

Hargobind Khorana was an Indian-American biochemist. While on the faculty of the University of Wisconsin-Madison, he shared the 1968 Nobel Prize for Physiology or Medicine with Marshall W. Nirenberg and Robert W. Holley for research that showed the order of Nucleotides in nucleic acids, which carry the genetic code of the cell and control the cell's synthesis of proteins.

Hargobind Khorana was born in a Hindu family in a little village called Raipur in Punjab in British India. The village is now part of West Pakistan. The correct date of his birth is not known. Official documents show it as January 9th, 1922. He is the youngest of a family consisting of one daughter and four sons. His father was a 'patwari'. 'Patwari' was a village agricultural taxation clerk in the British Indian system of government. Although poor, his father was determined to educate his children and they were actually the only literate family in their village inhabited by about 100 people.

Hargobind Khorana went to the D.A.V. High School in Multan (now in Pakistan). Ratan Lal, who was one of his teachers, influenced him greatly during that period. Later, Hargobind studied at the Punjab University in Lahore where he obtained a M.Sc. degree. Here one Mr. Mahan Singh, a great teacher and accurate experimentalist, was his supervisor. He also influenced Hargobind immensely.

Khorana lived in India until 1945, when the award of a Government of India Fellowship threw an opportunity and made it possible for him to go to England. In England, he studied for a Ph.D. degree at the University of Liverpool. Roger J. S. Beer not only supervised his research but also, looked after him sincerely and affectionately. This was a major introduction to Western civilization and culture for Hargobind. Later Khorana spent a year (1948-1949) at the Eidgenossische Technische Hochschule in Zurich with Professor Vladimir Prelog for doing postdoctoral work. This association with Professor Prelog further moulded profoundly his thought and philosophy towards science, work and effort.

After a brief period in India in the winter of 1949, Khorana returned to England where he obtained a fellowship to work with Dr. G. W. Kenner and Professor A. R. Todd. He stayed in Cambridge from 1950 till 1952. He began research on nucleic

acids during this fellowship at the University of Cambridge under Sir Alexander Todd. Again, this stay proved to be of decisive value to Khorana. His interest in both proteins and nucleic acids got strengthened at that time.

Later Hargobind went to Vancouver after Dr. Gordon M. Shrum of British Columbia offered him a job in 1952. The British Columbia Research Council offered at that time very little in the form of facilities, but there was a great amount of freedom to do whatever the particular researcher liked to do. During the subsequent years, with Dr. Shrum's inspiration, encouragement and frequent help, scientific counsel from Dr. Jack Campbell, a group began to work in the field of biologically interesting phosphate esters and nucleic acids. Among the many devoted and loyal colleagues of this period, there was one Dr. Gordon M. Tener, who contributed positively to the spiritual and intellectual make up of the group.

Hargobind later held fellowships and professorships in Switzerland at the Swiss Federal Institute of Technology and the Universities of British Columbia and Wisconsin. In 1960 Khorana joined the Institute for Enzyme Research at the University of Wisconsin. In the 1960s Khorana corroborated Nirenberg's findings that the way the four different types of nucleotides are arranged on the spiral "staircase" of the DNA molecule determines the chemical composition and function of a new cell. The 64 feasible combinations of the nucleotides are read off along a strand of DNA as required to produce the desired amino acids, which are the building blocks of proteins.

- 5.(a) What kind of a job did Khorana's father hold ?
- 5.(b) What was the attitude of his father towards his children's education ?
- 5.(c) How did the government of India help Hargobind Khorana in his studies ?
- 5.(d) Where and what did Hargobind Khorana study after he received help from the government of India ?
- 5.(e) What did Hargobind Khorana achieve in the early 1960s ?

6.(a) Rewrite the sentences as directed :

1×10=10

6.(a)(i) The boss _____ (might/will) ask you to work overtime today. (Choose the correct modal)

6.(a)(ii) I tried to persuade him, but he refuses to _____ (listen to / hear) me. (Choose the appropriate verb)

6.(a)(iii) Kartik won't be late, _____ ? (Use the appropriate question tag)

6.(a)(iv) There is a cinema hall _____ two kilometers of my house. (Insert the correct preposition)

6.(a)(v) He said to me, "What are you doing ?" (Change into indirect speech)

6.(a)(vi) Nobody knows the _____ (actual / factual) situation. (Choose the correct word to fill in the blank)

6.(a)(vii) He keeps me waiting. (Change the voice)

6.(a)(viii) The _____ (minister's / ministers') decision to postpone the meeting surprised even his party leaders. (Choose the correct word to fill in the blank)

6.(a)(ix) Rarely _____ (have we seen / we have seen) such unanimity among the senior staff in a matter of such importance. (Choose the correct option)

6.(a)(x) I am not used to do the housework (Use the correct form of the verb)

6.(b) Write one sentence each using the following phrases to bring out their meaning clearly. Do not change the form of the given phrases :

2×5=10

6.(b)(i) Come about

6.(b)(ii) Look about

6.(b)(iii) Take after

6.(b)(iv) Hang back

6.(b)(v) Come into

making any unnecessary changes : 1
6.(c)(i) The management admires for our watchman's bravery.

6.(c)(ii) I get up at six in the morning.

6.(c)(iii) You are required to sign with ink.

6.(c)(iv) Have you come in train or by car ?

6.(c)(v) I will not go until you do not come back.

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