

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE**

**III SEMESTER BSC END-SEMESTER EXAMINATION OCTOBER 2021**

**GE 318 - General English – (NSA Special Course - BBZ, CBZ, CBBT, CZBT, CEB, CEZ, MCB, MCZ)**

**Time: 2 ½ hours Max marks: 70**This paper contains **FOUR** printed pages with **THREE** Sections

**INSTRUCTIONS:**

1. Please write **NSA SPECIAL** on the front page of your answer booklet.

2. You will lose marks for exceeding word limits and lifting from the passage.

3. You are allowed to use a dictionary during the examination.

**I. Read the following excerpt from the essay titled ‘Succession’ by Aathira Perinchery from *Fifty Two* (Jan 29, 2021):**One evening in 2010, ecologist SP Vijayakumar and his two field assistants stood in a faint drizzle, listening carefully to the evening’s orchestra. It was August, and they were in a forest patch hemmed in by tea bushes in Upper Manalar, an estate in the Meghamalai Hills on the Kerala-Tamil Nadu border. In a symphony dominated by cooing wild pigeons and buzzing cicadas, Vijay was focused on one series of notes: the calls of bush frogs. He was studying these nocturnal creatures as part of his doctoral research at Bengaluru’s Indian Institute of Science.

“Soon, we were engulfed in frog calls,” Vijay recalled. “It was a cacophony.” He could hear the voices of the Bedomme’s and the green-eyed, two species of bush frogs. Notes from a popular Tamil song emanated from a distant loudspeaker. Through all this, one unfamiliar sound kept breaking through: repeated metallic clinks. Vijay was flummoxed when he spotted the source on a slim branch nearby. He’d never seen a frog exactly like it before: brilliant apple-green coat, “bright and burning” black eyes striped with an egg-yolk yellow, and crucially, a white lichen-like pattern on its back.

The green coat and the black eyes were familiar, he felt. They reminded him of the white-spotted bush frog, Raorchestes chalazodes. But that lichen-like pattern was baffling. Chalazodes had nothing so strange on its back. In any case, white-spotted bush frogs were only found in the Agastya Hills, which are about 100km away—as the crow flies—from Meghamalai. There are dense forests, small towns, paddy fields and a 7km break in the mountains known as the Shencottah Gap between them. The white-spotted bush frogs have been isolated for thousands of years. There wasn’t much chance of them breeding successfully with individuals from a different population.

Only after thinking through various possibilities did Vijay begin to entertain the most thrilling one. Could the creature in his palm be hitherto unknown to science?

India is one of 17 “megadiverse” nations. The main criterion to make the list is a high degree of endemism. That means megadiverse countries have the highest number of species that are not found anywhere else in the world. Within countries, endemic species can be spread over territory (like the kangaroo in Australia) or restricted to a specific geography (the Komodo dragon, which inhabits just five islands in Indonesia).

In India, discovering new species is now a common thing. It excites people in the evolutionary biology and conservation communities but remains otherwise undissected in the popular imagination. Discoveries are regularly reported in mainstream media, but it’s mostly for their surprise value. Look, a lizard under windmills in Maharashtra! An eel buried under the earth in Meghalaya! A four-foot-long walking fish in Bengal!

There’s a larger phenomenon at work. In the last few years, an increase in the number of explorations and game changing developments in scientific technique have helped us make better sense of what these discoveries mean. Some are clues to the past: what was the earth like millions of years ago, before mountains were born and rivers flowed? Others piece together the puzzle of the present: how and why did we get here? Still others provide warnings about the future: what would the world possibly look like if we don’t amend the way we live?

Not quite apart from these big questions, the lab work potentially has a make-or-break fallout. Billions of dollars tied to institutional conservation programmes are funnelled towards quantifiable and easily observable metrics. In that sense, “species” is a convenient category. But it comes with its own politics. The mills of evolution grind finely but slowly. So from the myopic view of several million generations, the scientific baptism of the Meghamalai frog marks neither the end nor the beginning of its evolutionary story. It captures only a snapshot.

**I.A. Answer ANY THREE in about 150 words each: (3x10=30)**

1. Who do you think is the intended audience of this piece? Give reasons for your response.
2. How would the above piece be different if it were written in the form of a research paper or a textbook entry? Pick out details that may not have found their way into a research paper or textbook.
3. “In India, discovering new species is now a common thing. It excites people in the evolutionary biology and conservation communities but remains otherwise undissected in the popular imagination. Discoveries are regularly reported in mainstream media, but it’s mostly for their surprise value.”

What do these lines say about the relationship between the common person and science? How does the phrase ‘undissected in the popular imagination’ sum up the author’s view of writing for the layman?
4. Asimov’s essay that you read in class this semester (*Eureka Phenomenon*) illustrates that scientific papers are written in a manner that read like as if the scientist knew what they were doing from the start. Do you find instances from this piece that acknowledge the ‘not- knowing’ aspect of science? What does it mean for science to acknowledge the unknown?

# II. Read the following excerpt from the essay titled ‘Why Scientists Must Learn to Communicate with the Public’ by Shruti Muralidhar from *The Wire* (Jan 2, 2017):

Recently, I was drawn to a thread where a scientist and a science communicator locked horns to discuss whether scientists should be responsible for science communication.

Science communication, which didn’t exist as a field until the 19th century, came up in response to the emergence of ‘public science’: undertakings funded not just by private patronage and the Royal Societies but by universities and other public institutions. Science communication is quite simply conveying the results of science to the public. The field gained credibility because the public benefited from scientific advances – including the steam-powered printing press, which greatly enhanced public education through books.

Doing science has not been and never should be ‘just another job’. Scientists are among the few and fortunate that work on the very limits of human knowledge. It is our duty and privilege to create new knowledge and push existing boundaries, along with the best and brightest minds in the world. And therefore, communicating science to the public is, in fact, the best chance scientists have to inspire young minds and motivate the people to know more about their world.

It is also very easy for scientists to wash their hands of this important task by claiming that, since they have published in a scientific journal and passed peer review, they are under no obligation to explain anything else to the public. This point of view is not only dangerous in the short-term but also absolutely detrimental to science in the foreseeable future.

**II. A. Answer the following in about 5-8 sentences each: (4x5=20)**

1. “It is also very easy for scientists to wash their hands of this important task by claiming that, since they have published in a scientific journal and passed peer review, they are under no obligation to explain anything else to the public. This point of view is not only dangerous in the short-term but also absolutely detrimental to science in the foreseeable future.”

Why do you think the writer says that this view is dangerous and detrimental?
2. What was the first piece of science communication that you’ve encountered and found effective? Why was it effective?
3. Do you think it’s the job of scientists to communicate science? Should there be a separate category of people doing this? Why or why not?
4. One of the most common reasons cited by scientists for not engaging in science communication is that science is too complicated for the public to understand. Do you find this a convincing reason? Give reasons for your response.

**III. Answer the question below in about 250 words: (1x20=20)**
5. Has the experience of the NSA Special course changed your initial definition of science? Attempt a 250-word essay on what you think science is now, keeping in mind the reading, writing, and discussions you’ve done in the semester. Use examples to illustrate the same.