



# VIDHVATH ACADEMY FOR COMPETITIVE EXAMS

+91 99722 58970, +91 97407 02455

## SUBJECT WISE TEST: VPT033 ENVIRONMENT AND ECOLOGY TEST BOOKLET

*Time Allowed: 60 mins*

*Maximum Marks: 100*

### INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES NOT HAVE ANY UNPRINTED OR TURN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES A, B, C OR D AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. Do NOT write anything else on the Test Booklet.
4. This Test Booklet contains 50 items (Questions). Each item is printed in English. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response with you consider the best. In any case, choose ONLY ONE response for each item.
5. You have to mark all your responses ONLY on the separate Answer Sheet provided. See direction in the answers sheet.
6. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the answer sheet. For every incorrect response  $1/3^{\text{rd}}$  of the allotted marks will be deducted.
7. Before you proceed to mark in the Answer sheet the response to various items in the Test booklet, you have to fill in some particulars in the answer sheets as per instruction sent to you with your Admission Certificate.
8. After you have completed filling in all responses on the answer sheet and the examination has concluded, you should hand over to Invigilator only the answer sheet. You are permitted to take away with you the Test Booklet.
9. Sheet for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

1. Consider the following statements regarding coral reefs:

1. Coral has a symbiotic relationship with 'zooxanthellae' that assist the coral in nutrient production through its photosynthetic activities
2. The corals are generally fast-growing colonies of plants while zooxanthellae are slow growing animals
3. While the majority of coral reefs are found in tropical and sub-tropical water, there are also deep water corals in colder regions.
4. Among the four major reef areas of India, Gulf of Kutch are found to be very rich in species diversity

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 4 only
- (d) 1 and 4 only

2. Consider the following statements regarding National Air Quality Index NAQI:

1. National Air Quality Index is tool that uses numbers to simplify air quality data of a city by classifying pollution levels into 6 categories
2. It has been developed by the Ministry of Urban and housing affairs in consultation with IIT-Kanpur and an expert group comprising medical and air-quality professionals.
3. The measurement of air quality is based on eight pollutants, including carbon dioxide and ozone

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

3. Which of the following are the benefits of the Estuary Ecosystem?

1. It is helpful in navigation , tourism , aquaculture and in erosion protection

2. It provides habitat, breeding and nursery grounds for plants and animals.
3. It provides water quality regulation and groundwater recharge.

Select the correct answer using the code given below:

- (a) 1, 2 and 3
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

4. Consider the following statements regarding Ecotone:

1. Ecotone is a zone of junction between two or more diverse ecosystems that may be narrow or quite wide.
2. Well developed ecotones contain only the same organisms as that of the adjoining communities.
3. Edge effect refers to the changes in population or community structures that occur at the Ecotone.
4. The mangrove forests represent an ecotone between forest and desert ecosystem.

Which of the statements given above is/ are correct?

- (a) 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1 and 3 only
- (d) 1, 2, 3 and 4

5. Consider the following statements regarding Food chain:

1. A food chain is the movement of nutrients and energy from one creature to another at different trophic levels.
2. Energy provided by the sun is the primary component in every food chain.
3. Particular food chains remain unchanged in every environment.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 2 only

(d) 1 and 2 only

6. Consider the following statements regarding various nutrients and minerals cycle:

1. A nutrient cycle is a cyclic mechanism through which nutrients travel in order to be recycled and used.
2. Water, carbon, and nitrogen are the significant gaseous cycles.
3. Nitrogen fixation is an aerobic process that converts atmospheric nitrogen ( $N_2$ ) to Ammonia ( $NH_3$ )
4. Sedimentary cycles are biogeochemical cycles that have the earth's mantle as their reservoir.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 and 4 only
- (c) 2 and 3 only
- (d) 1 and 4 only

7. Which of the following statements correctly explains Potential Resources:

- (a) Resources which are in current utilization.
- (b) Resources which can't be used due to its uselessness.
- (c) Resources whose utility is not known at present but can be used in future.
- (d) None of the above.

8. Consider the following statements regarding the process of Eutrophication in water bodies:

1. Large amounts of Nitrates and Phosphates cause eutrophication in waterbodies.
2. In natural Eutrophication, a lake is characterized by nutrient enrichment during which Eutrophic lake is converted into an Oligotrophic lake.
3. Eutrophication causes dead zones, which are hypoxic areas in the world's oceans and large lakes where aquatic lives cannot survive.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

9. Consider the following statements with reference to Hydro Power:

1. The turbines convert potential energy of the water into mechanical energy to drive the generator.
2. Generally, there are three types of hydropower facilities namely impoundment, diversion, and pumped storage.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

10. Consider the following statements regarding the environmental impact of sand mining?

1. Sand acts as a natural carpet, removal of the layer leads to the downstream erosion.
2. Sand mining leads to the shortening of the mouth of the river.
3. The local water table level decreases because of sand mining.
4. It affects the intertidal area and creates the imminent danger of saline water ingress in the freshwater.

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

11. Consider the following statements regarding ecosystem functions:

1. The capacity of ecosystems in maintaining their state of equilibrium and regulating their own species structure and functional processes is known as homeostasis.

2. Hibernation occurs in animals living in deserts and tropical regions to protect themselves from hot and dry climate, and due to the scarcity of food water.

3. Aestivation is the condition in which the animals go dormant during winters by lowering their metabolic activities

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

12. Consider the following statements regarding levels of organization in ecology:

- 1. Communities are a group of organisms usually of the same species occupying a defined area during a specific time.
- 2. In order to survive, individuals of any one species depend on individuals of different species with which they actively interact in several ways are called population
- 3. A biome is a large ecological area with similar climatic conditions and can have multiple ecosystems within it.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 2 only
- (d) 3 only

13. Consider the following statements regarding biotic interactions:

- 1. A large tree shades a small plant, retarding the growth of the small plant is an example of Commensalism.
- 2. Relationship between two species inhabiting the same space and using the same resources, but that have no effect on each other is called Mutualism

3. Cow dung provides food and shelter to dung beetles whereas the beetles have no effect on the cows is an example of Mentalism

Which of the statements given above is/are not correct?

- (a) 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

14. Consider the following statements regarding Ramsar convention:

- 1. It is an international treaty for the conservation and wise use of wetlands Known officially as 'the Convention on Wetlands of International Importance especially as Waterfowl Habitat' came into force in 1975.
- 2. Every three years, representatives of the contracting parties meet as the Conference of the Contracting Parties.
- 3. Montreux Record is the primary tool under the Ramsar Convention for recognizing wetlands sites on priority basis.

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

15. In which of the following ways desert plants and animals are adapted to survive in hot and dry conditions?

- 1. Animals are usually fast runners, have short legs, nocturnal and they conserve water by excreting concentrated urine.
- 2. Plants conserve water by having a root system that is well developed and spread over large area.
- 3. Many plants in the desert conserve water by not having any leaves at all.

Select the correct answer using the code given below:

- (a) 1 and 2 only

- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

16. Consider the following statements regarding the Commission for Air Quality Management (CAQM) :

1. It is a statutory body established under the Air (Prevention and Control of Pollution) Act 1981
2. It Conduct research and development through networking with technical institutions.
3. The Commission will supersede bodies such as the central and state pollution control boards of Delhi, Punjab, Haryana, UP and Rajasthan.
4. The commission is headed by Union Minister for Environment and Climate Change

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2 and 4
- (d) 1, 2, 3 and 4

17. Consider the following statements regarding pollutants:

1. Biomagnifications refers to increase in concentration of a pollutant from the environment to the first organism in a food chain.
2. Bioaccumulation refers to the tendency of pollutants to concentrate as they move from one trophic level to the next.
3. Heavy metals pose a serious threat to humans and the environment because of its toxicity, bioaccumulation and their ability to affect the biodegradability of organic pollutants

Which of the statements given above is /are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

18. Consider the following statements regarding Acid rain or Acidification :

1. Acid rain is caused by atmospheric pollution from acidic gases such as sulphur dioxide and oxides of nitrogen emitted from the burning of fossil fuels.
2. In areas where the weather is dry, the acid chemicals may become incorporated into dust or smoke and fall to the ground through dry deposition.
3. The impact of acid rain on soil is high in India, because Indian soils are already mostly acidic.

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

19. Match the following pollutants and the convention associated with it:

1. Mercury: Minamata Convention
2. Persistent organic pollutants: Basel Convention
3. Chemical Waste: Rotterdam Convention
4. Ozone Layer: Vienna Convention

How many pairs given above is/are correct matched?

- (a) Only one pair
- (b) Only Two Pairs
- (c) Only Three Pairs
- (d) All four pairs

20. Which of the following are the effects of acid rain on the environment?

1. Acid Rains add minerals and nutrients to the soil.
2. Acid Rains adversely impact open historical heritage and monuments.
3. Acid Rains can also impact coral vegetation and marine ecosystems.
4. Acid Rain can cause the ocean's pH to rise.

Select the correct answer using the codes given below:

- (a) 1 and 4 only
- (b) 2 and 3 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3 and 4

21. With reference to Ecotone, consider the following statements:

1. It is a zone of junction between two or more identical ecosystems.
2. A well-developed ecotone contains only the organisms which are entirely the same as that of the adjoining communities.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

22. Which of the following is/are the goods and services provided by ecosystems?

1. It helps in generation and renewal of soil fertility, including nutrient cycling.
2. It provides food and fuel only.
3. It stabilizes and modernizes the Earth's climate.

Select the correct answer using the code given below:

- (a) 1, 2 and 3
- (b) 1 only
- (c) 1 and 3 only
- (d) 2 only

23. Consider the following food chains.

Litter → Earthworms → Chicken → Hawk

Identify the food chain from the options given below:

- (a) Heterotrophic
- (b) Detritus
- (c) Grazing
- (d) Autotrophic

24. Consider the following statements with reference to Ecological Succession:

1. In primary succession on a terrestrial site the new site is first colonized by a

few hardy climax species, whereas Secondary succession occurs when plants recognize an area in which the pioneer community has been disturbed.

2. Autogenic succession is when succession is brought by the living organisms in that specific community whereas autotrophic succession is when the green plants are much greater in quantity.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

25. Which of the following are the causes for deforestation?

1. Slash and burn cultivation
2. Mining
3. Hydroelectric project
4. Community Forestry
5. Defence and communication activities

Select the correct answer using the code given below:

- (a) 2, 3 and 5 only
- (b) 1, 2, 3 and 4 only
- (c) 1, 2, 3 and 5 only
- (d) 1, 3 and 4 only

26. Consider the following statements with reference to Algal Blooms:

1. A bloom doesn't result in colour change in the water and the toxic blooms are known as Harmful Algal Blooms.
2. Blooms occur when several colonies start combining rapidly when conditions such as nutrient concentrations, salinity and temperature are optimal.
3. Harmful Algal Blooms (HABs) can deplete oxygen in water and lead to low dissolved oxygen levels.
4. Harmful Algal Bloom (HAB) is not considered an environmental hazard.

Which of the statements given above are correct?

- (a) 2 and 3 only
- (b) 2, 3 and 4 only
- (c) 1, 3 and 4 only
- (d) All of the above

**27.** Consider the following statements with reference to Coral Reefs:

1. Coral is a microscopic algae and has a symbiotic relationship with zooxanthellae, which is a living animal.
2. They occur in shallow tropical areas where the sea water is clean, clear and warm.
3. Recently, they were discovered along the coast of Tahiti, the largest island in French Polynesia

Which of the statements given above are correct?

- (a) 2 and 3 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) All of the above

**28.** With reference to the Desertification, consider the following:

1. It is the destruction of the biological potential of the land which can ultimately lead to desert-like conditions.
2. India is not a signatory to the United Nations Convention to Combat Desertification.
3. Presence of vegetation prevents soil erosion and modifies the hostile climate.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

**29.** With reference to the Coastal Ecosystem, consider the following statements:

1. The coastal ecosystems occur where the land meets the sea and that

includes only mangrove forest and coral reefs.

2. The Indian National Centre for Ocean Information Services has carried out coastal vulnerability assessments for the entire Indian coast at state level.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**30.** Consider the following statements with reference to Mercury Pollution:

1. Mercury can be toxic and can cause damage to the nervous and immune system.
2. Recently a binding agreement was signed at a meeting of the Conference of Parties to the Minamata Convention on Mercury (COP-4.2) to combat illegal trade in mercury.
3. The Minamata Convention on Mercury is a multilateral environmental agreement that addresses specific human activities which are contributing to widespread mercury pollution.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) All of the above

**31.** Consider the following materials:

1. Metals
2. Paper
3. Photographic Materials
4. Rubber
5. Ceramics and glass
6. Paints and organic coatings

Which of the above materials are damaged by acid rain?

- (a) 1, 2, 3 and 4 only
- (b) 2, 3, 4 and 6 only
- (c) 1, 3, 4 and 5 only
- (d) All of the above

**32.** With reference to ban on captivity and conservation of Dolphins, consider the following statements:

1. Cetaceans, including whales, dolphins and porpoises, are known to be highly intelligent animals and captivity alters their behaviour and causes extreme distress.
2. Recently, the Ministry of Environment, Forest and Climate Change announced that October 5 will be celebrated as National Dolphin Day.
3. Under Conservation efforts, Project Dolphin is aimed at conserving the freshwater dolphins only.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) All of the above

**33.** With reference to the Forest Ecosystem, consider the following:

1. It includes a complex assemblage of different kinds of biotic communities.
2. On the basis of soil and climate only, the distribution of trees is determined.
3. It has been classified into three major categories namely Boreal forests, temperate forest and tropical forest.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All of the above

**34.** Consider the following statements with reference to Indian Himalayan Region:

1. It generates a plethora of services only for Himalayan inhabitants and has a permanent snow cover and glaciers.
2. It is warming increasingly due to positive radiative effects due to water vapor at the top of the atmosphere.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

**35.** Consider the following statements:

1. The Gaganyaan Programme envisages undertaking the demonstration of human spaceflight to Low Earth Orbit.
2. Unlike satellites in Geostationary Orbit that must always orbit along Earth's equator, Low Earth Orbit satellites do not always have to follow a particular path around Earth
3. PSLV - XL, will be used to launch Gaganyaan as it has the necessary payload capability.
4. India will be the third country to have sent a human to space, the other two being the US and Russia

Which of the statements given above is /are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2 and 4 only

**36.** With reference to the Kartarpur Corridor, consider the following statements:

1. It facilitates visa-free movement for Indian pilgrims to visit Darbar Sahib Gurdwara in Pakistan.
2. The corridor was inaugurated to commemorate the 550th birth anniversary of Guru Nanak Dev.

Which of the statements given above is/are not correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) None of the above

**37.** If India's BoP shows a deficit in the current account, it implies that:



- (a) India is exporting more goods and services than it is importing.
- (b) India's net foreign investments are exceeding its foreign liabilities.
- (c) India is receiving more foreign aid and remittances than it is giving.
- (d) India's payments for imports and other transactions exceed its receipts from exports and other sources.

38. Consider the following statements:

- 1. Absolute veto refers to the power of the President to withhold his assent to a bill passed by the Parliament.
- 2. The power of the President not to take any action on the bill is known as the suspensive veto.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

39. Consider the following statements:

- 1. Dhansiri River forms a natural boundary between Karbi Anglong (Assam) and Arunachal Pradesh.
- 2. The main tributaries of the Tizu River are river Zunki, Lanye and Likimro.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

40. Which of the following statements is correct regarding the 'Naavu Manujaru' programme?

- (a) It provides farmers with investment support for agriculture and horticulture crops.
- (b) It aims to inculcate social harmony and Constitutional values among children.
- (c) It gives safe and conveniently located accommodation for working women.

- (d) It focuses on protection of the rights of transgender people and their welfare

41. With reference to the Indian Coast Guard (ICG), which of the following statements is/are correct?

- 1. It was established by the Coast Guard Act, 1978 of the Parliament of India.
- 2. The Ministry of Defence is the parent agency of ICG

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

42. With reference to Association of Southeast Asian Nations (ASEAN), consider the following statements:

- 1. It was established in 1967 with the signing of the Marrakesh treaty.
- 2. Its founding members are Malaysia, Philippines, Singapore and Thailand.
- 3. It is an important trade partner of India with about 11% share in India's global trade.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

43. Consider the following statements about tantalum:

- 1. It is a ductile metal with a high melting point.
- 2. Tantalum is highly reactive with acids.
- 3. It is used in the manufacturing of surgical implants and electronic capacitors.

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

44. With reference to seahorses, consider the following statements:

1. Seahorses are classified as mammals.
2. India is home to a significant portion of the world's seahorse species.
3. Seahorses are primary consumers in the marine ecosystem.
4. Seahorses are protected under both Indian and international laws.

Which of the above statements is/are correct?

- (a) 2 and 4 only
- (b) 1 and 3 only
- (c) 2, 3, and 4
- (d) 4 only

45. Which one of the following contexts is correct for 'Justice P. Ramachandra Raju Commission of 1996' and 'National Commission of 2007'?

- (a) Conservation of Eco Sensitive Zones
- (b) Sub Categorization of Scheduled Castes
- (c) States Rights to Tax Minerals
- (d) Election in Local Bodies

46. Operation CHAKRA III, recently conducted by the Central Bureau of Investigation (CBI), is related to:

- (a) Combating drug trafficking
- (b) Addressing Real estate scams
- (c) Dismantling a cyber-enabled financial crime network
- (d) Curbing human trafficking

47. Consider the following statements with reference to Polar Bear.

1. It is the largest bear in the world.
2. It is found only in Canada and Norway.
3. The IUCN Red List of Threatened species classifies it as least concern.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

48. Which of the following statements about India's role and commitments under global environmental agreements is/are correct?

1. India became a party to the Vienna Convention and Montreal Protocol in 1992.
2. The Kigali Amendment, adopted in 2016, aims to phase down Hydro fluorocarbons (HFCs).
3. India launched the Cooling Action Plan in 2019 to address refrigerants and energy efficiency but has not yet phased out any ozone-depleting substances (ODS).

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

49. Consider the following statements with reference to the Body Roundness Index (BRI):

1. BRI was developed by Diana Thomas in 2013.
2. BRI mathematically quantifies body fat levels by looking at height and weight.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

50. Which of the following statements regarding mitochondria is/are correct?

1. Mitochondria are membrane-bound organelles found in eukaryotic cells.
2. They are responsible for generating most of the cell's supply of adenosine triphosphate (ATP), which is used as a source of chemical energy.
3. Mitochondria have their own DNA, separate from the nuclear DNA.

4. The number of mitochondria in a cell can vary depending on the cell's energy needs.

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1, 2, and 4 only
- (d) 1, 2, 3, and 4