Q1(A))

(1) all of the above
(2) habitat
(3) protozoa
(4) Monocotyledonous plant
(5) recycling

Q1(B))

(1) Lithosphere, Hydrosphere , Atmosphere (any two)
(2) True
(3) Hard disk is an external memory component while others are software components.
(4) Fungus
(5) 1) - c, 2) - d

Q2(A))

(1) i. Naphthalene is an organic compound which is used to keep the insects or microbes away from any noneatable substance to store for a long time.
ii. As the clothes when put away, there are chances of them being affected by the fungal spores present in the air and this can be prevented by using moth balls also known as naphthalene balls.
(2) i. Solid waste is a serious problem for economic growth, environmental degradation and health.
ii. So, it is necessary to manage solid waste for: preventing environmental pollution and to keep the surroundings clean.
iii. For energy as well as fertilizer production and through that to generate work and employment opportunities.
iv. To reduce the strain on natural resources through treatment of solid waste.
v. Thus, it is the need of the hour to implement solid waste management practices to avoid the possible problems due to solid waste generated from urban and industrial areas and to maintain a clean environment.
(3) i. All organisms need nutrients for their growth.
ii. Nutrients, necessary for the growth of organisms are continuously transferred from abiotic to biotic factors and biotic to abiotic factors within an ecosystem.
iii. This cycle operates continuously through the medium of the biosphere and every organism is benefited.
iv. If not in cyclic manner, the energy would become extinct and nutrients will be obtained only in one form which cannot be used by all the organisms.

Q2(B))

(1) Some of the opportunities in the software fields of computers are application program development, software package development, operating systems and utility development, special purpose scientific applications, etc.
(2) i. Plants belonging to division bryophyta are called the amphibians of the plant kingdom. It is because they grow in moist soil but need water for reproduction.
ii. The plants belonging to this division are thalloid, multicellular and autotrophic.
iii. The structure of the plant body is flat, ribbon-like long, without true roots, stem and leaves.
iv. Plant body is made up of stem-like or leaf-like parts and root-like rhizoids.
v. Bryophytes do not have specific tissues for conduction of food and water.
vi. They reproduce by spore formation.

vii. e.g. Moss (Funaria), Marchantia, Anthoceros, Riccia., etc.

(3) Biotic components:

i. Biotic factors include the living parts of ecosystems, including plants, microbes and animals.
ii. Biotic components are present in living forms.
iii. They are mainly energy source for the consumers and saprotrophs.
iv. Ex. plants, animals, microbes, etc.

Abiotic components:

i. Abiotic factors are environmental components that are nonliving.
ii. Abiotic components may be in physical or chemical form.
iii. They are mainly the source of energy for Producers (plants).
iv. Ex. Carbon, oxygen, nitrogen, iron,etc.

(4) Radioactive materials like Strontium-10, Cerium-141, Barium-139 and Heavy water, etc.

(5) i. Lichen is a composite organism that arises from symbiotic relation between algae and fungi.
ii. The majority of the lichen thallus is comprised of fungal filaments called the medulla. It is made of fungal cells that are loosely packed in the middle of the lichen thallus, have thin cell walls, and are threadlike which results into a cotton-like substance underneath the outer cortex.
iii. Lichen is used in the preparation of dyes, PH paper, medicines etc.
iv. It is also used as pollution indicator species.
v. It is used in spices and for making litmus paper.

Q3)

(1) Advanced Computing, Pune, research, supercomputer, Param, Vijay Bhatkar

(2) (1) The science that studies the inter-relationships between the various components of air, natural cycles, geological movements of the earth and climate is called meteorology.
(2) Meteorology includes the study of storms, clouds, rainfall, thunder, lightning etc.
(3) Meteorology is useful to common people, farmers, fisheries, aviation services, water transport and various other organizations.

(3) (1) The circulation and recycling of carbon from the atmosphere to living organisms and after their death back to the atmosphere is called the carbon cycle.
(2) Plants convert carbon dioxide into carbohydrates by the process of photosynthesis.
(3) Photosynthesis and Respiration.

(4)

Disease	**Pathogen**
Pneumonia	**Bacteria**
Leprosy	**Bacteria**
Malaria	Protozoa
Influenza	**Malaria**
Dandruff	**Fungi**
Hepatitis	**Malaria**

(5) (1) Depending on presence of seeds, Plants are divided into the two groups - Phanerogams and Cryptogams.
(2) Angiosperms are classified as monocots or dicots depending upon the number of cotyledons in seeds.
(3) Thallophyta , Bryophyta, Pteridophyta. {any 2}

(6) i. In a bio-geo-chemical cycle, the element is produced and then used again and the cycle is continued.
ii. Hence, equilibrium is necessary in the various bio-geo-chemical cycles.
iii. Carbon dioxide as well oxygen is released and absorbed by various biotic and abiotic processes in the surroundings.
iv. Main processes in the carbon and oxygen cycle are photosynthesis and respiration.

v. Oxygen is released into the atmosphere by the biotic process of photosynthesis and CO2 through respiration.
vi. Therefore, the equilibrium of oxygen and carbon dioxide gases in the atmosphere is maintained by plants.

(7) Microbes are the oldest form of life on earth. They are the tiny organisms that inhabit the world with us, around us and even within us. Characteristics of microbes:
i. They are very small to be seen with the naked eye i.e. they cannot be seen with naked eyes.
ii. They are used to describe types of life form that is bacteria, archea, fungi, viruses, protists, microscopic animals.
iii. Microbes are present everywhere.
iv. They can be seen only under microscope.

(8) i. The major classification of the plant and animals is based on the presence of cell wall.
ii. Cell wall is a completely permeable cell organelle which is present only in plant cells.
iii. It provides rigidity to the plant cells and thus is an very essential organelle. If absent the plant cell dies.
iv. Another cell organelle present in plant cells but absent in animal cells is chloroplast.
v. Chloroplast contains chlorophyll which helps the plant to produce its own food by process of photosynthesis.
vi. Thus plants have an autotrophic mode of nutrition.

Q4)

(1) 1. **Diseases in plants:**

(1) **Diseases caused by fungus:**
i. Infection of rust on the crops of wheat, bajra, jowar, sugarcane, maize, fig, peas etc.
ii. Smut on wheat, bajra, jowar, maize and sugarcane.
iii. Downy mildew and blight of grapes.
iv. Anthtacnose of rice, tikka of growndnuts.
v. Foot-rot of cotton and Anthtacnose disease.
vi. Tikka of turmeric, rot of ginger and other spalings.
vii. Gummosis of lime, citrus canker and stem rot of Papaya.
viii. Ergot of jhowar and bajra. ix. Leaf spot of potato.

(2) **Diseases caused by bacteria:**
i. Bacterial leaf sports, red-edge, soft rot, etc.
ii. Sheath blight of rice.

(3) **Diseases caused by viruses:**
i. Mosaic disease of tomato.
ii. The rotting of upper shoot in groundnuts.
iii. Downy mildew of okra and tomato iv. Spotted wilt in tomato.

(4) **Diseases caused by Mycoplasma:**
i. Grassy shoot of sugarcane
ii. Small leaf disease of brinjal.

(2) **Treatment of plant diseases:**
i. Spraying antibiotics and other medicines.
ii. Providing proper nutrition to the plants and crops.
iii. Doing proper cultivation and agricultural practices.

(3) **Diseases in animals:**
i. Diseases caused due to fungus: E.g. Ringworm, actinomycosis, aspergillosis, candidiosis etc.
ii. Diseases caused due to bacteria: E.g. Glanders, anthrax, salmonellosis, tetanus, mastitis etc.
iii. Diseases caused to virus: E.g. Rabies, foot and mouth disease, blue tongue, snoring disease, feline herpes etc.

(4) **Treatment of animal diseases:**

i. Vaccination.

ii. Immunization against infective diseases.

iii. Proper maintenance and nutrition.

(2) i. The circulation and recycling of nitrogen gas into the form of different compounds through various biotic and abiotic processes occurring in nature is called the nitrogen cycle.

ii. All organisms participate in the nitrogen cycle. It is an important component of proteins and nucleic acids. As compared to other elements, it is inactive and does not easily combine with other elements. Most organisms cannot use the free form of nitrogen.

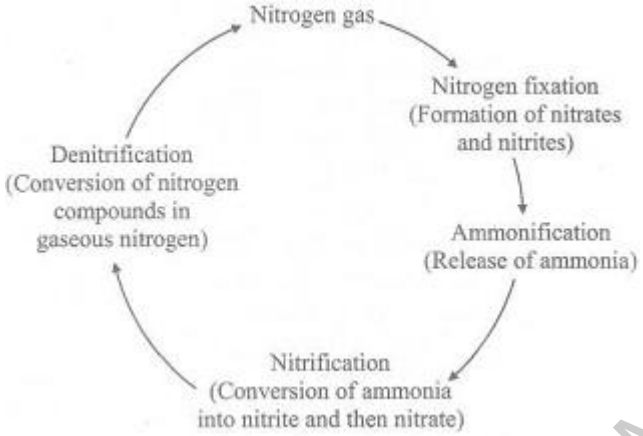
iii. Important processes of the nitrogen cycle are as follow:

1. Nitrogen fixation: In this step, nitrogen is converted into nitrates and nitrites through atmospheric, industrial and biological processes.

2. Ammonification: Here, ammonia is released through decomposition of dead bodies and excretory wastes of organisms.

3. Nitrification: In nitrification, ammonia is converted into nitrite and then nitrate.

4. Denitrification: Here, nitrogen compounds converted into gaseous nitrogen.



All the Best