

# Board Activity Sheet Solution: March 2022

## Science and Technology Part – 2

<b>Q.1 (A)</b>	i. (C) ii. (D) iii. (A) iv. (B) v. (D)
<b>Q.1 (B)</b>	i. War ii. True iii. Western Ghat : Asiatic lion :: Sunderban sanctuary : <b>Tigers</b> iv. Coal is used as fuel in thermal power plant. v. The given picture represents: <b>Laughter Club</b>
<b>Q.2 (A)</b>	<p>i.</p> <ul style="list-style-type: none"> <li>a. Cell division is the property due to which a new organism (unicellular) is formed from an existing one.</li> <li>b. In case of multicellular organisms, the growth of the organisms is dependent on cell division.</li> <li>c. It is also essential for restoration of emaciated body.</li> <li>d. Cell division is an important aspect of wound healing, formation of blood cells, and other such important life processes.</li> </ul> <p>Hence, cell division is one of the important properties of cells and organisms.</p> <p>ii.</p> <ul style="list-style-type: none"> <li>a. Cockroach has jointed appendages, which is the characteristic feature of members belonging to phylum Arthropoda.</li> <li>b. The body of cockroach is triploblastic, eucoelomate, bilaterally symmetrical, segmented and divisible into head, thorax and abdomen.</li> <li>c. Its exoskeleton is chitinous.</li> </ul> <p>Due to the presence of these characteristics, it can be said that cockroach belongs to phylum Arthropoda.</p> <p>iii.</p> <p>Power generation from natural gas is more eco-friendly as natural gas does not contain sulphur, burning of natural gas results in less pollution and is thus more eco-friendly.</p>
<b>Q.2 (B)</b>	<p>i.</p> <pre> graph TD     A[Evidences of Evolution] --&gt; B[Morphological]     A --&gt; C[Embryological]     A --&gt; D[Vestigial organs]     A --&gt; E[Similarities in bone structure]     A --&gt; F[Paleontological]     A --&gt; G[Connecting links]   </pre>



- ii.
- a. Mr. Molai single handedly transformed a barren land into forest.
  - b. It was due to his positive attitude, affection towards nature and hard work, that he could achieve success in planting trees, in over 1360 acres of land.
  - c. From the story of Jadav Molai Payeng we learn that, we all need to make Earth a better place to live for us as well as for the coming generations.
  - d. From his story, it is clear that if a large crowd causes harm to the environment, even a single person, if determined can establish a forest and benefit the environment in great ways.
  - e. Also, if one person can make such an impact, many people coming together in unity to take efforts for environment conservation can bring about a revolution.
- iii.

	<b>Sexual reproduction</b>	<b>Asexual reproduction</b>
a.	Reproduction that occurs with the help of two germ cells is called sexual reproduction.	Reproduction that occurs with the help of somatic cells is called as asexual reproduction.
b.	Male and female parent are necessary for sexual reproduction.	This is uniparental reproduction, thus both male and female parent are not necessary.
c.	This reproduction involves both mitosis and meiosis type of cell division.	This reproduction occurs with the help of mitosis only.
d.	New individual formed by this method is genetically different from parents.	The new individual formed by this method is genetically identical to its parent.
e.	In all individuals sexual reproduction occurs by gamete formation and fertilization.	Asexual reproduction occurs in different individuals by various methods like binary fission, multiple fission, budding, fragmentation, regeneration, vegetative propagation, spore formation, etc.

[Any two points]

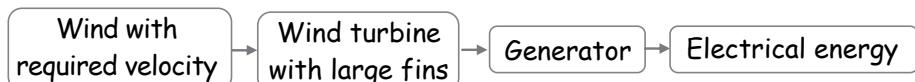
- iv.
- a. The crops which are developed by altering the DNA of natural crops are known as genetically modified crops.
  - b. Examples of genetically modified crops: Bt cotton, Bt brinjal, Golden rice, herbicide tolerant plants

[Any two examples]

- v.
- Vitamins:
- a. Vitamins are a group of heterogenous compounds which are essential for the proper operation of various life processes.

**Q.3**

- i. b. The two types of vitamins are fat-soluble vitamins and water-soluble vitamins.
- a. Please do not litter; Dispose your waste in dustbin / Trash bin
- b. Save fuel
- c. Save water
- ii. The characteristics of class Reptilia are:
- a. They are poikilothermic (cold-blooded) animals.
- b. They locomote by creeping, as their body cannot be lifted up.
- c. Digits are provided with claws.
- d. Their skin is dry and scaly.
- e. Neck is present between the head and trunk.
- f. External ear is absent.
- [Any three characteristics]
- iii. a. Milk is used to produce cheese. In cheese production, microbes like *Lactobacillus lactis* and *Streptococcus thermophilus* are mixed with milk.
- b. Enzyme rennet obtained from alimentary canal of cattle used traditionally in the production of cheese.
- c. An enzyme protease obtained from fungi is used to produce vegetarian cheese.
- iv. a. The process shown in diagram is stem cell therapy.
- b. Stem cells can be transformed into other types of cells. The organs generated using stem cells can be used for organ transplantation.
- c. Stem cells may develop into neurons, brain, intestines, liver, heart and bone.
- v. a. The unpredictable dangerous events which occur many times in the environment are known as disasters.
- b. Natural disasters: Flood, earthquakes, storms, volcanic eruptions, tsunami, landslides, etc.
- c. Man-made disasters: Terrorist attacks, communal riots, bomb explosions, road accidents, fire, etc.
- [Any two examples of each]
- vi. Some of the main objections raised against Darwin's theory of natural selection are as follows:
- a. Natural selection is not the only factor responsible for evolution.
- b. In his theory, Darwin did not explain the inheritance of useful and useless modifications.
- c. No explanation regarding slow and abrupt changes was provided in this theory.
- vii. a. The process shown in the given picture is Biofuel production.
- b. Examples of fuels obtained:  
Solid fuels: coal, dung, crop residue  
Liquid: vegetable oils, alcohol
- [Any two examples]
- viii. a. Flow chart showing stages in electric generator using wind energy

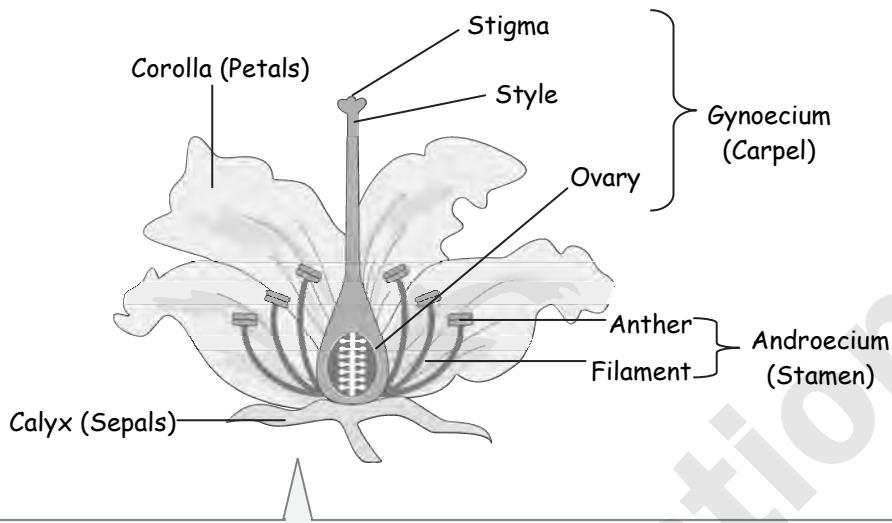


**Q.4**

- b. Limitations of using wind energy in an electric generator is that the wind-velocity necessary for wind-energy generation is not available everywhere.

i.

a.

**SMART TIP**

Accessory whorls are the outer parts of the flower (petals and sepals) while the essential whorls are reproductive parts (gynoecium and androecium) which are protected by the outer whorls.

- b. The process of transfer of pollen grains from anther to stigma is called pollination.
- c. Pollination occurs with the help of abiotic agents like wind, water and biotic agents like insects and other animals.
- ii. a. If I start spending more time on internet I would follow the below given steps:
1. Designating activities during which the usage of internet or mobile phones should be strictly avoided. For example during meals, while studying, etc.
  2. Talking to family members or friends when I feel lonely instead of using internet or mobile phones. This will reduce the habit of using mobile phones during idle time.
  3. Develop hobbies like reading books, writing diary, collecting various materials, drawing, singing, listening to music, etc.

[Any one]

- b. If I find that the child of my neighbour is addicted to tobacco chewing:

1. I will make him aware about the health problems associated with chewing tobacco like mouth cancer, tooth decay, gum diseases, etc. This will help him to make decision about quitting tobacco.
2. I will advise him to reduce the use of tobacco everyday till he finally quits it completely.
3. I will also make him talk to his family or friends regarding the issue, so as to help him get rid of the habit.

[Any one]



- c. If I find that my sister has become incommunicative and prefers to remain alone;
1. I will talk to her and try to find out the reason for her aloofness and the stress. I will discuss her problem and help her find a solution to her problem.
  2. I will try to get her to speak with family members and participate in family discussions, family functions, etc. I would also encourage her to pursue her hobbies. This can help her divert her mind from the issues that are troubling her.
  3. If required I will advise her to consult a professional counsellor and discuss her problems.

[Any one]

- d. I will use the free space around my home in the following manner:
1. I will grow small plants and shrubs, which will beautify the surroundings and also help in reducing the carbon dioxide levels.
  2. I can also make the space available for parking of public vehicles or starting a small playground, library, etc.

[Any one]

- e. If I find that my brother studying in XII has developed stress;
1. I will talk with him and try to understand whether the stress is due to studies.
  2. I will also help him in preparing timetable for his studies so that he gets time for relaxation and some leisure along with studies.

[Any one]