Ecosystem

1. **Assertion (A):** Ecosystem can be visualized as a functional unit of nature.
Reason (R): In ecosystem not only living organisms interact among themselves but also with surrounding physical environment.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

2. **Assertion (A):** Net primary productivity is the base of life of heterotrophs.
Reason (R): Net primary productivity is the available biomass for consumption to heterotrophs.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

3. **Assertion (A):** Of this, despite occupying about 70 percent of the surface, productivity of oceans are only 55 billion tons.
Reason (R): In oceans there is poor nutrient availability in producer region.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

4. **Assertion (A):** Fragmentation is one of the important step of decomposition.
Reason (R): Fragmentation helps in leaching of water soluble organic substances & minerals.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

5. **Assertion (A):** Decomposition is largely an oxygen requiring process.
Reason (R): Oxygen leads to aerobic breakdown of organic substances hence there is complete breakdown of detritus.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

6. **Assertion (A):** In Terrestrial ecosystem much larger fraction of energy flows through the detritus food chain.
Reason (R): In an aquatic ecosystem, GFC is the major conduit for energy flow.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

7. **Assertion (A):** Detritus food chain may be connected with grazing food chain at some levels.
Reason (R): Some of the organisms of DFC are prey to the GFC animals and some of the organisms are of Omnivores in nature.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

8. **Assertion (A):** Pyramid of energy is most reliable representation of functional relationship of any ecosystem.
Reason (R): Energy flow is always unidirectional without any kind of deviation.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

9. **Assertion (A):** A given species may occupy more than one trophic level, in the same ecosystem at the same time.
Reason (R): Trophic level represents a functional level, not a species as such.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

10. **Assertion (A):** Saprophytes are not given any place in ecological pyramids although they play vital role in ecosystem.
Reason (R): Saprophytes have no specific trophic level.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

11. **Assertion (A):** Living systems have a high degree of tendency for undergoing entropy.
Reason (R): Living systems overcome entropy by continuous input of usable or free energy.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

12. **Assertion (A):** In place of isolated food chain, food webs are operational in an ecosystem.
Reason (R): Absence of any species in an area does not effects the energy flow.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

13. **Assertion (A):** In an aquatic ecosystem, pyramid of biomass is inverted.
Reason (R): Biomass depends upon the reproductive potential and number of phytoplanktons.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

14. **Assertion (A):** Every biological system resist a change and wants to remain in state of equilibrium.
Reason (R): Climax communities of an ecosystem are produced after several changes it has gone through succession.
(1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
(2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
(3) (A) is true but (R) is false
(4) Both (A) and (R) are false

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:
(a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) If Assertion is true but Reason is false.
(d) If both Assertion and Reason are false.

15. **Assertion:** Restriction enzymes recognize palindromic sequence.
Reason: Palindromic sequences read same in both directions of the two strands.

16. **Assertion:** Restriction enzymes Hind II and Hpa are produced from two different genera of bacteria.
Reason: Hind II is produced from Haemophilus while Hpa is produce from Hematococcus.

17. **Assertion:** Restriction endonucleases are also called 'molecular scissors'.
Reason: When fragments generated by restriction endonucleases are mixed, they join together due to their sticky ends.

18. **Assertion :** Restriction enzymes cut the strand of DNA to produce sticky ends.
Reason : Stickiness of the ends facilitates the action of the enzyme DNA polymerase.

19. **Assertion:** Plasmids are extrachromosomal DNA.
Reason : Plasmids are found in bacteria and are useful in genetic engineering.

20. **Assertion:** Insertion of recombinant DNA within the coding sequence of b-galactosidase results in colourless colonies.
Reason: Presence of insert results in inactivation of enzyme b-galactosidase known as insertional inactivation.

21. **Assertion:** Agrobacterium tumefaciens is a pathogen of several monocot plants.
Reason: Retroviruses in plants have ability to transform normal cells into cancerous cell.

22. **Assertion:** Agrobacterium tumefaciens is popular in genetic engineering because this bacterium is associated with roots of all cereals and pulse crops.
Reason: A gene incorporated in the bacterial chromosomal genome gets automatically transferred to the crop with which the bacterium is associated.

23. **Assertion:** Clones are produced by sexual reproduction.
Reason: These are prepared by group of cells descended from many cells or by inbreeding of a heterozygous line.

24. **Assertion :** "DNA finger printing" has become a powerful tool to establish paternity and identity of criminals in rape and assault cases.
Reason : Trace evidences such as hairs, saliva and dried semen are adequate for DNA analysis.

25. **Assertion :** One application of genetic engineering is the production of human insulin by microbes.
Reason : Gene for production of human insuling can be transferred to Escherichia coli by recombinant DNA technique.

26. **Assertion:** Genetic engineering can overcome the drawbacks of traditional hybridization.
Reason: Genetic engineering can create desired DNA sequences to meet specific requirements.

27. **Assertion:** All expression vectors are cloning vectors and vice versa.
Reason: Expression vectors have at least the regulatory sequences i.e., promoters, operators, ribosomal binding sites, etc. having optimum function in the chosen control but not origin of replication.

ANSWER KEY													
Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Ans.	1	1	1	1	1	2	1	2	1	1	2	1	3	2

15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.				
B	D	B	C	B	A	D	D	D	A	A	C	d				