# Exercise-1

**Marked Questions are for Revision Questions.**

## ONLY ONE OPTION CORRECT TYPE

### SECTION-A # INTRODUCTION, ABIOTIC FACTORS, RESPONSES TO ABIOTIC FACTORS

**1.** Who defined ecology as "The reciprocal relationship of organisms and their environments"
(1) Misra (2) Haeckel (3) Odum (4) Lamarck

**2.** In which branch of science, relationship between organisms and environment is studied
(1) Genetics (2) Ecology
(3) Ecosystem ecology (4) Gene ecology

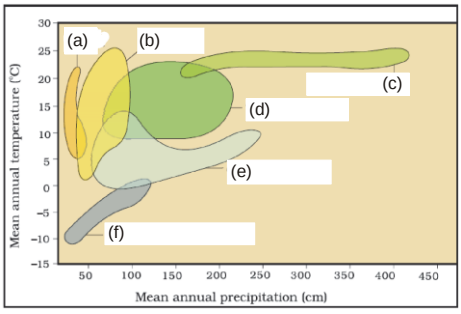
**3.** Autecology means the study of
(1) Effect of temperature on vegetation (2) Effect of soil on vegetation
(3) Ecology of individual organism (4) Effect of precipitation on vegetation

**4.** Synecology is the study of
(1) Environment (2) Plant community (3) Individual (4) None of the above

**5.** Ecology is mainly concerned with four level of organisation. What are they:-
(1) Biosphere, population, habitat, community (2) Population, habitat, organism, community
(3) Organisms, population, communities, biome (4) Habitat, population, biome, organism

**6.** The major biomes of of India are
(1) Deciduous forest, Desert, Sea coast, Tropical rain forest
(2) Sub tropical forest, Desert, Sea coast, Alpine region.
(3) Tropical rain forest, Sea coast, Deciduous forest, Alpine region
(4) None of the above.

**7.** Following graph shows biome distribution with respect to annual temperature and precipitation:




(1) (a) Desert, (b) Grassland, (c) Temperate forest, (d) Tropical forest, (e) Coniferous forest, (f) Arctic and alpine
(2) (a) Grassland, (b) Desert, (c) Tropical forest, (d) Temperate forest, (e) Coniferous forest, (f) Arctic and alpine
(3) (a) Grassland, (b) Desert, (c) Temperate forest, (d) Tropical forest, (e) Coniferous forest, (f) Arctic and alpine
(4) (a) Desert, (b) Grassland, (c) Tropical forest, (d) Temperate forest, (e) Coniferous forest (f) Arctic and alpine tundra

**8.** Choose the correct combination of labelling a,b,c,d of the zones in water in a lake

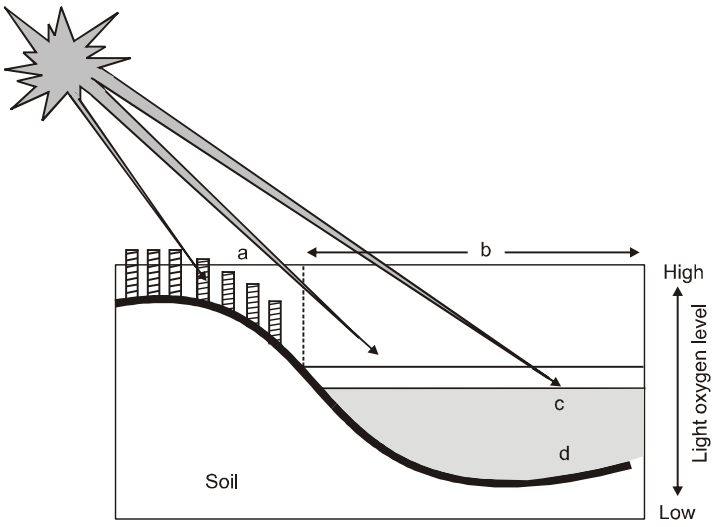



**Fig: Zones in deep lake and ocean**

(1) a - Limnetic zone, b - Profundal zone, c - Littoral zone, d - Benthic zone
(2) a - Littoral zone, b - benthic zone, c - Profundal zone, d - Limnetic zone
(3) a - Littoral zone, b - Limnetic zone, c - Profundal zone, d - Benthic zone
(4) a - Limnetic zone, b - Littoral zone, c - Benthic zone, d - Profundal zone

**9.** Functional aspect of a species with reference to its place of occurrence is
(1) Ecology (2) Ecological niche (3) Species (4) Environment

**10.** Which of the following is direct dominant ecological factor that affects the vegetation of a place
(1) Temperature (2) Altitude (3) Soil (4) Wind

**11.** The alpine forests are classed under the plant group called
(1) Hekistotherms (2) Megatherms (3) Mesotherms (4) Microtherms

**12.** Rhododendron is characteristic of vegetation of
(1) Alpine zone (2) Tropical zone (3) Gangetic plains (4) Mangrove belt

**13.** Warm blooded animals of cold climate have small extremities. This was stated by
(1) Bergman (2) Gloger (3) Dollo (4) Allen

**14.** How many statements are correct among the following:-
(1) The productivity and distribution of plants is also heavily dependent on water.
(2) Some organisms are tolerant a wide range of salinities called euryhaline while others are restricted to a narrow range called stenohaline.
(3) Mammals of colder climates generally have shorter ears and limbs to minimise heat loss, this is called the Allen's Rule.
(4) If the age distribution is plotted for the population, the resulting structures is called an average pyramid
(1) Both (1) & (2) (2) Both (3) & (4) (3) (1),(2) & (3) (4) All are correct

**15.** Diapause is shown by
(1) Zooplanktons (2) Frog (3) Birds (4) Snakes

**16.** Plants growing on sand and gravel are called as
(1) Psammophytes (2) Psilophytes (3) Oxylophytes (4) Sciophytes

**17.** For an aquatic system, which of the following statement is wrong?
(1) Salinity of inland water is 5ppm
(2) Salinity of sea water ranges between 30-35ppm
(3) Salinity of hyper-saline lagoons is more than 100 percent
(4) This salinity affects the productivity and not the distribution of aquatic plants.

**18.** A soil is said to be physiologically dry when
(1) There is plenty of water in the soil (2) Concentration of salt is very high in the soil
(3) Light available to plants is not sufficient (4) Both (1) and (2) together

**19.** The soil transported by air is called
(1) Glacial (2) Colluvial (3) Alluvial (4) Eolian

**20.** Laterite soil is rich in
(1) Mg (2) Ca (3) Al (4) Fe

**21.** 'Solum' includes -
(1) Horizons A and B (2) Horizons $A_2$ and B only
(3) Horizon A only (4) Horizons $A_1$ and $A_2$ only

**22.** A good soil is that which allows
(1) Rapid percolation of water (2) Selective percolation of salt
(3) No percolation of water and salt (4) Slow percolation of water

**23.** Percentage of water left in the soil when a plant wilts is known as
(1) Wilting coefficient (2) Field capacity
(3) Water retaining power of the soil (4) Turgidity

**24.** Vegetation of any place is primarily determined by
(1) Rainfall (2) Amount of soil water
(3) Soil type (4) Amount of light

**25.** Match the columns of size with soil particles

| | Column I | | Column II |
|---|---|---|---|
| a | 0·2–2·00 mm | (i) | silt |
| b | Less than 0·002 mm | (ii) | Clay |
| c | 0·02–0·2 mm | (iii) | Coarse sand particles |
| d | 0·002–0·02 mm | (iv) | Fine sand particles |

(1) a – iv, b – i, c – iii, d – ii (2) a – iii, b – ii, c – iv, d – i
(3) a – ii, b – iii, c – iv, d – i (4) None of the above.

**26.** The transitional zone where two different communities meet is called
(1) Niche (2) Ecotone (3) Ecad (4) Ecotype

**27.** People who have migrated from the planes to an area adjoining Rohatang Pass about six months back
(1) Have more RBCs and their haemoglobin has a lower binding affinity to $O_2$
(2) Are not physically fit to play games like football
(3) Suffer from altitude sickness with symptoms like nausea, fatigue, etc
(4) Have the usual RBC count but their haemoglobin has very high binding affinuty to $O_2$

**28.** 'Flag trees' are formed due to
(1) Erosion and depression (2) Slat spray
(3) Lodging (4) Unidirectional winds

## SECTION-B # ECOLOGICAL ADAPTATIONS, POPULATION & POPULATION INTERACTIONS, BIOTIC COMMUNITY

**1.** Very small animals are rarely found in polar regions-
The main region of this fact is:-
(1) Because they are not able to make themselves according to environment.
(2) Because Polar Regions do not provide appropriate environmnt for breeding to small animals.
(3) Because they have to expend much energy to generate body heat through metabolism.
(4) All of the above correct

**2.** Root cap is absent in
(1) Xerophyte (2) Hydrophyte (3) Mesophyte (4) Halophyte

**3.** Which of the following one is not correct for Xerophyte
(1) Spongy parenchyma (2) Well developed vascular tissue
(3) Well developed mechanical tissue (4) Thick cuticle

**4.** Acacia arabica is a
(1) Halophyte (2) Mesophyte (3) Xerophyte (4) Hydrophyte

**5.** Plants growing on cold soil are called as
(1) Psychrophytes (2) Psammophytes (3) Oxylophytes (4) Sciophytes

**6.** Rooted submerged hydrophyte plant is
(1) Typha (2) Eichornia (3) Azolla (4) Hydrilla

**7.** In terrestrial plant gaseous exchange takes place through stomata. Gaseous exchange in lower hydrophytes takes place through
(1) Lenticels (2) Stomata
(3) Hydathode (4) Diffusion from general surface

**8.** Presence of Pneumatophore roots & vivipary are special features of
(1) Hydrophytes (2) Halophytes (3) Xerophytes (4) Mesopohytes

**9.** Characteristic feature of hydrophytes is
(1) Stem with well developed sclerenchyma (2) Poorly developed roots
(3) Well developed xylem (4) Well developed roots

**10.** Competition for nutrients, food, light and space is more severe between two
(1) Unrelated species occupying different niches
(2) Unrelated species occupying the same niche
(3) Closely related species occupying different niches
(4) Closely related species occupying the same niche

**11.** Ecotype is
(1) Transitional zone
(2) Genetically adapted ecological races of an area
(3) Genetically different individuals with same phenotype
(4) Genetically identical individual with same phenotype

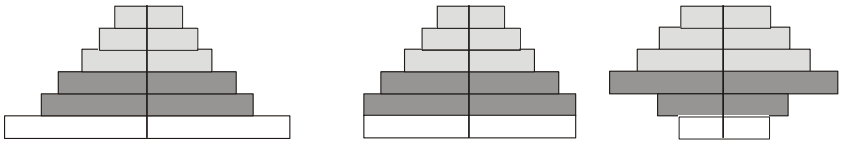
**12.** A plant or animal form produced in responses to a habitat, the adaptation not being heritable is called
(1) Ecad (2) Thermocline (3) Life form (4) Ecotype

**13.** Plants which are attached to the stones and rocks are
(1) Lithophytes (2) Halophytes (3) Aerophytes (4) Psammophytes

**14.** If in a pond there are 40 Lotus plants last year and through reproduction 16 new plants are added, taking the current population 56, new the birth will be :-
(1) 5.6 (2) 0.4 (3) 0.5 (4) 1.6

**15.** Peak concentration of ozone occurs in the atmosphere above a height of
(1) 10 km (2) 15 km (3) 20 km (4) 25 km

**16.**




Above diagram represents age pyramids of human population. In which a, b & c represent triangular, Bell shaped and Urn shaped age pyramids which of the following statement is true
(1) The number prereproductive individuals is more than reproductive individuals & post reproductive individuals in Bell shaped age pyramid
(2) The number of post reproductive individuals is equal to number of reproductive individuals in Triangular age pyramid
(3) The number of reproductive individuals is more than post reproductive individuals and pre reproductive individuals in urn shaped age pyramid
(4) The number of prereproductive individuals & reproductive individuals are equal in triangular shaped pyramid.

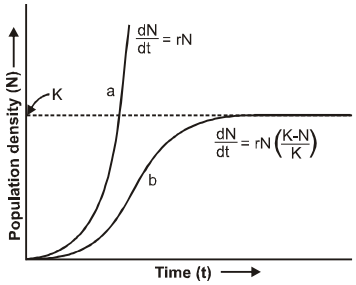
**17.** $N_{t+1} = N_t + (B + I) – (D + E)$
In the above equation, if the value of D + E is more than B + I then population will -
(1) Declining (2) stable (3) Expanding (4) Non evaluated

**18.** Exponential population growth is represented by
(1) dN/dt = rN (2) dt/dN = rN (3) dN/rN = dt (4) rN/dN = dt

**19.** After exponential increase, population growth declines and stagnates. The growth curve is

(1) S- shaped (2) J-shaped (3) Straight line (4) Circular

**20.** In the above diagram which type of growth have been demonstrated by **a** curve and **b** curve respectively.




(1) a - Logistic growth, b - Exponential growth

(2) a - Absolute growth, b - relative growth

(3) a - Exponential growth, b - logistic growth

(4) a - Exponential growth, b - Negative growth

**21.** $\frac{dN}{dt} = rN$

The above formula of growth is applicable for

(1) Human (2) Insects (3) Fishes (4) Reptiles

**22.** Which of the following shows lowering of value of 'r'

(1) Darwian fitness in organisms

(2) Logistic growth in organisms

(3) Compitition

(4) Exponantial growth in organisms

**23.** Which of the following correct about predator -

(1) As conduits for energy transfer across trophic levels

(2) keep prey populations under control

(3) Reducing the intensity of competition among competing prey species and maintain species diversity in community.

(4) All of the above

**24.** A successful parasite is the one which

(1) Grows rapidly (2) Reproduces fast

(3) Sticks to host for long (4) Makes minimum demands from its host.

**25.** A protective device in a community is

(1) Commensalism (2) Mimicry (3) Parasitism (4) Competition

**26.** One who gets food at the cost of other is

(1) Parasite (2) Commensal (3) Saprophyte (4) Insectivore

**27.** Which mammal excretes solid urine to avoid water loss

(1) Crow (2) Kangaroo rat (3) Camel (4) Squirrel

**28.** Characteristic feature of mangrove plants is
(1) Apospory (2) Heterospory (3) Parthenocarpy (4) Vivipary

**29.** *Cuscuta* is an example of:
(1) Ectoparasitism (2) Brood parasitism (3) Predation (4) Endoparasitism

**30.** Animal never feed on Calotropis, because it produces poisonous cardiac glycoside in the body of predator which is correct about this:-
(1) It is morphological defence mechanism.
(2) It is chemical defence mechanism to protect from predator
(3) Only pathogen affected plant contains poison producing substance
(4) All of the above.

**31.** The following relationship does not correspond to mutualism
(1) Mycorrhiza (2) Epiphytism
(3) Zoochory (4) Zoophily

**32.** The relationship between a climber and the host corresponds to
(1) Mutualism (2) Parasitism
(3) Neutralism (4) Commensalism

**33.** The protocooperation is also called as
(1) Facultative predation (2) Facultative parasitism
(3) Non-obligatory mutualism (4) Non-commensalism

**34.** Which of the following is an example of resource partitioning
(1) Disappearance of abingdon tortoise from galpagose iceland after introduction of goat.
(2) five closely related species of warblers living on the same tree
(3) The human liver fluke and a snail or a fish
(4) The cattle egret birds and grazing cattle

**35.** The association of nodule bacteria with leguminous roots is known as
(1) Parasitism (2) Saprophytism (3) Symbiosis (4) Epiphytism

**36.** Praying Mantis is a good example of
(1) Camouflage (2) Warning colouration
(3) Mullerian mimicry (4) Social insect

**37.** Which of the following pair is incorrect –
(1) Secondary producer – Herbivores
(2) Mutualism – Relationship of Fig & Wasp
(3) Competitive exclusion – Relationship of Balanus barnacle & chathamalus barnacle
(4) Camouflage – Praying mentis

**38.** Which group of organism shows sexual deceit and coevolution?
(1) Lichen (2) Mycorrhiza
(3) Relationship of fig and wasp (4) Ophrys & bumble bees

**39.** Closely related morpholgically similar sympatric populations but reproductively isolated are called
(1) Demes (2) Clones (3) Sibling species (4) Clines

**40.** The plant - animal interactions often involve co-evolution of the mutualists so that
(1) The mutually beneficial system could be safeguarded against 'cheaters'
(2) A given plant species can be pollinated only by its partner animal species can be pollinated only by it partner animal species and no other species.
(3) The animal utilizes plant not only for oviposition but also to pollinate the plant
(4) All of these

**41.** Select the wrong pair
(1) predation and parasitism - one species benefits and the interaction is detrimental to the other species.
(2) mutualism - both species are banifitted
(3) commensalism - one species is benefitted and the other is neither benefitted nor harmed
(4) *competition* - It is always harmful for only one species not both the species.

**42.** When one organism inhibits another organism without a significant gain (OR) Antagonism between two organism through gases or allochemicals is called
(1) Parasitism (2) Mutalism (3) Amensalism (4) Commensalism

**43.** The relationship between the alga Microcystis and the surrounding fauna corresponds to
(1) Exploitation (2) Amensalism (3) Parasitism (4) Predation

**44.** Carrot grass / Congress grass (Parthenium) exhibit allelopathy by virtue to the production of
(1) Alkaloids and glycosides (2) Abscisic acid
(3) Protocaterchuic acid (4) Transcinnamic acid

**45.** Presence of higher diversity at the junction of territories of two different habitats is called
(1) Bottle neck effect (2) Edge effect (3) Junction effect (4) Pasteur effect

## MISCELLANEOUS QUESTIONS

**1.** Which of the following is an example of hibernation in beer and aestivation in fishes –
(1) Migration (2) Regulation (3) Conform (4) Suspend

**2.** If predators are not present, than which of the following abnormalities will be possible -
(1) Very high population densities (2) Ecosystem instability
(3) Both (1) & (2) (4) Ecosystem remain unaffected.

**3.** Presence of special chemical on the body of monarch butterfly, is matched of its protection. When it obtain this chemical:-
(1) When predator hunt is it
(2) Present on its body in complete life
(3) By feeding on a poisonous weed during its catterpillar stage
(4) None of the above.

**4.** Brood parasitism is found in:-
(1) Plasmodium & human (2) Ticks & dogs
(3) Cuckoo & crow (4) None of the above

**5.** Allelopathy is caused by release of
(1) Hormone (2) Toxin (3) Pheromone (4) Chemicals

**6.** Root cap is absent in
(1) Halophytes (2) Hydrophytes (3) Xerophytes (4) Psammophytes

**7.** Which is not true for hydrophytes?
(1) Poorly developed root system (2) Thin membranous leaves
(3) Poorly developed large air spaces (4) Poorly developed vascular bundles

**8.** Soil carried by gravity is
(1) Alluvial (2) Eolian (3) Colluvial (4) Glacial

**9.** Aquatic photodiffraction produces zones
(1) Euphotic, disphotic and aphotic (2) Aphotic, euphotic and disphotic
(3) Euphotic, aphotic and disphotic (4) Disphotic, aphotic and euphotic

**10.** Killing an organism for feeding is
(1) Predation (2) Parasitism (3) Symbiosis (4) Exploitation

**11.** Ozone protects biosphere from high energy
(1) Infra-red rays (2) Ultraviolet rays (3) X-rays (4) Gamma rays

**12.** A plant living for a few days is
(1) Annual (2) Ephemeral (3) Biennial (4) Perennial

**13.** Science linking heredity with environment is
(1) Ecology (2) Ecophysiology (3) Genecology (4) Genetics.

**14.** In autogenic succession
(1) Community itself modifies its own environment thus causing its own replacement by new community
(2) Early dominance of heterotrophs
(3) Replacement of existing communites due to external conditions
(4) Early and continued dominance of autotrophic organisms

**15.** In Mullerian mimicry, the mimic is
(1) Harmless but resembles an obnoxious model
(2) Harmless but resembles the background
(3) Harmful but resembles a non-toxic model
(4) Harmful and resembles a model which is also harmful to predator.

**16.** Ecotone is
(1) Transitional area between two communities (2) Interaction between two populations
(3) Development of ecads (4) Development of ecotypes

**17.** An obligate root parasite is
(1) Viscum (2) Striga (3) Loranthus (4) Rafflesia.

**18.** Which one is a xerophyte
(1) Capparis (2) Lotus (3) China Rose (4) Casuarina

**19.** Which of the following is wrongly matched
(1) Temperate zone –20º - 40º latidude (2) Hypolimnion – Thermal stratifications in lakes
(3) Ozone layer – Stratosphere (4) Profundal zone – Dark zone

**20.** An orchid resembling the female of an insect so as to be able to get pollinated is due to phenomenon of
(1) Mimicry (2) Pseudocopulation (3) pseudopollination (4) Pseudoparthenocarpy

**21.** Plants which behave as mesophytes in rainy season and xerophytes in summer are
(1) Xerophytes (2) Phreatophytes (3) Mesophytes (4) Tropophytes

**22.** Excessive aerenchyma is characterstic of
(1) Heliophytes (2) Xerophytes (3) Mesophytes (4) Hydrophytes

**23.** Animals undergo inactive stage during winter. It is
(1) Acclimatisation (2) Hibernation (3) Aestivation (4) Adaptation

**24.** Dominant producers of nerritic zone of sea are
(1) Phytoplankton (2) Zooplankton (3) Microorganisms (4) Diatoms

**25.** Humus is formed in
(1) Horizon – A (2) Horizon – O (3) Horizon –B (4) Horizon –C

**26.** Competition causes
(1) Symbiosis (2) Extinction (3) Mutation (4) Larger number of niches

**27.** The interaction of a species with the environment is called as
(1) Ecosystem (2) Autecology (3) Environment (4) Community

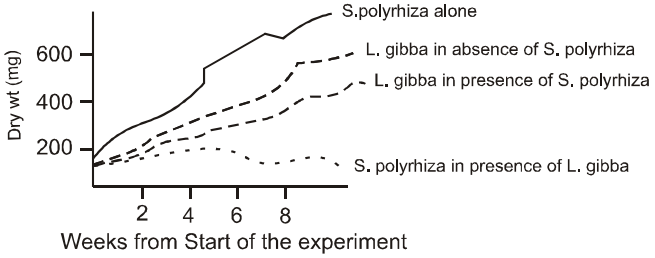
**28.** Alluvial soil is a type of
(1) Residual soil (2) Transport soil (3) Well mature soil (4) None of these

**29.** A species is a collection of demes. The deme is a group of
(1) Genes in different environment (2) Individuals in same environment
(3) Chromosomes in same organism (4) Population with a common gene pool

**30.** The type of plants having adaptations to check transpiration are
(1) Xerophytes (2) Epiphytes (3) Lithophytes (4) Halophytes

## Exercise-2

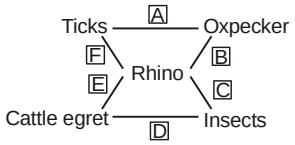
**1.** Spirodela polyrhiza and Lemna gibba are two small monocotyledons, which lies flat on the surface of quiet fresh water bodies. When these were grown in nutrient culture media, the following data were obtained. **(INBO - 2010)**




The type of interaction between the two species is most likely to be
(1) Commensalism (2) Amensalism (3) Parasitism (4) Competition

**2.** On the african plain, large herbivores like black rhinoceros disturb insect communities as they move. Birds like cattle egret feeds on the displaced insects. Neither the displacement of insects nor the activity of birds has any effect on the rhino. Oxpecker (a small dark bird) removes ticks from the skin of the rhino. The bird gets food & the mammals get relief from parasites. **(INBO - 2010)**

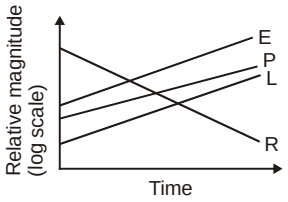
An outline of these inter-relief from parasites. Match the alphabets with the relationship that the organisms possess among themselves and then write only appropriate number in the space against each alphabet.




(1) Predation (2) Parasitism (3) Commensalism (4) Amensalism

(5) Mutualism (6) Competition

**3.** The accompanying graph depicts the relationship between environmental impact (E), world population (P), average standard of living (L) and world resources (R). What is expected, if the world population remains stable but the average standard of living continues to increase **(3rd NSEB)**



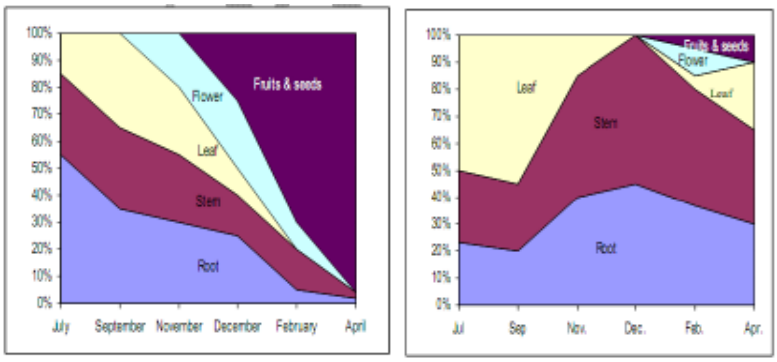

(1) Environmental impact will increase without much change in resources

(2) Environmental impact will not change but resources will deplete

(3) Environmental impact will increase and resources will deplete

(4) Environmental impact and state of resources not show significant change

**4.** The biomass of two different plant species M and N were analyzed and the respective fractions of the different plant parts were calculated. They have been represented below **(INBO 2012)**




Plant M Plant N

Which of the following statements would be true for the above data?

I. Plant M is an annual plant

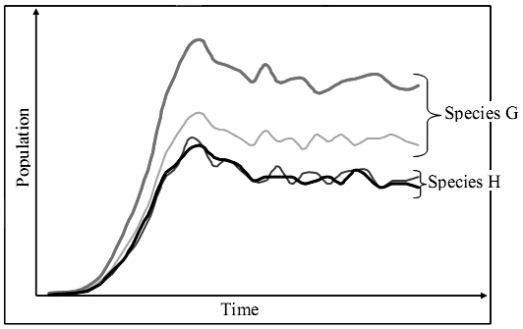
II. Plant N is a perennial plant

III. Plant N is a deciduous plant

IV. Plant M is an evergreen plant

(1) I, II and III (2) I and II only (3) I and III only (4) All the four

**5.** The following curves show the growth of two different species of bacteria G and H. They were cultured in Petri plates of two different sizes (7cm diameter and 10 cm diameter) with 20 ml of a similar nutrient media. (The lighter colour indicates the population in the smaller Petri plate.) **(INBO 2012)**




Which of the following would be true for the above experiment?

I. Species G has reached its carrying capacity

II. Species H has reached its carrying capacity

III. Species G is limited in its population by space

IV. Species H is limited in its population by space

(1) I, II and Ill only (2) I and II only (3) III and IV only (4) I, II, Ill and IV

**6.** A researcher clips pinnae of 20 rabbits trapped in a section of forest and releases them. After a fornight he traps 28 rabbits in the same section of forest and notices 4 of them with clipped pinnae. His estimate of rabbit population in the sector of the forest shoud be: **(NSEB-2013)**

(1) 2240 (2) 560 (3) 140 (4) 112

**7.** If 'K' is the carrying capacity of the habitat, 'N' is the total number of individuals in a population with intrinsic rate of reproduction as 'r', the growth rate of such a population will be directly proportional to :

I. r **(NSEB-2013)**

II. 1/N

III. 1/K-N

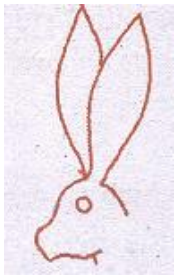
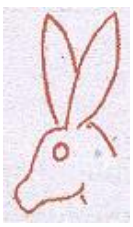
IV. (K-N)/K

(1) I and II (2) II and III (3) I and IV (4) Only I

**8.** The brown lizard species (Anolis sagrei) was introduced in a habitat where the green lizard (Anolis carolinensis) dwelling. After some years, it was found that low shrubs and grasses were occupied by brown lizards while green lizards lived higher up in the trees and foliage. This is an example of niche separation due to: **(NSEB-2013)**

(1) competition (2) commensalism (3) ammensalism (4) symbiosis

**9.** Accompanying pictures show the closely related species inhabiting environments varying mainly in temperatures. Which of them seems to be from the warmest habitat? **(NSEB-2013)**

(1)  (2)  (3)  (4) 

**10.** The table given below lists a few interactions between species and the effects that each type of interaction has on the two species involved. **(NSEB-2014)**

| **Interaction** | **Species 1** | **Species 2** |
|---|---|---|
| Commensalism | Benefits | P |
| Q | Benefits | Harmed |
| Competition | R | Harmed |

P,Q and R indicate

(1) P : Harmed Q : Mutualism R : Unaffected

(2) P : Unaffected Q : Amensalism R : Harmed

(3) P : Unaffected Q : Herebivory R : Harmed

(4) P : Benefits Q : Symbiosis R : Benefits

**11.** A hydrophyte showed the presence of lance shaped (narrow with pointed ends) leaves and broader heart shaped leaves in the same plant. This plant is most likely to be: **(NSEB-2014)**

(1) emergent hydrophyte

(2) submerged hydrophyte

(3) free floating hydrophyte

(4) rooted hydrophyte with floating leaves

**12.** In an ecosystem keystone species are: **(NSEB-2014)**

(1) species that are predatory in nature

(2) species that exert influence out of proportion to its abundance

(3) species that decrease the flow of energy through ecosystems.

(4) species that create an abundance in species-richness of that ecosystem

# Exercise-3

## PART - I : NEET / AIPMT QUESTION (PREVIOUS YEARS )

**1.** What is best pH of soil for cultivation **(AIPMT-2001)**

(1) 3·4 – 5·4 (2) 4·5 – 5·5 (3) 5·5 – 6·5 (4) 6·5 – 7·5

**2.** An unrestricted reproductive capacity is called **(AIPMT-2002)**

(1) Birth rate (2) Biotic potential (3) Carrying capacity (4) Fertility

**3.** Association between entomophilous flowers and pollinating agent is **(AIPMT-2002)**

(1) Commensalism (2) Coevolution (3) Mutualism (4) Cooperation

**4.** Two species cannot live in the same niche due to **(AIPMT-2002)**

(1) Allen's Law (2) Gause hypothesis (3) Doll's Rule (4) Weisman's theory

**5.** Two opposite forces operate in growth and devlopment of every population. One of them has ability to reproduces at a given rate. The opposing force is **(AIPMT-2003)**

(1) Morbidity (2) Fecundity (3) Biotic potenital (4) Environmental resistance

**6.** In which habitat does the diurnal soil temperature vary most? **(AIPMT-2003)**

(1) Forest (2) Grassland (3) Shrub land (4) Desert

**7.** Mycorrhiza is an example of **(AIPMT-2003)**

(1) Symbiotic relationships (2) Ectoparasitism

(3) Endoparasitism (4) Decomposers

**8.** A keystone species is the one which has **(AIPMT-2004)**

(1) A small proportion of total biomass but has huge impact on community's organisation and survival

(2) A plenty of biomass but low impacts on community's organisation

(3) A rare species with little impact on biomass and other species in the community

(4) A dominant species which has a large proportion of biomass and which affects many other species

**9.** Exponential population growth is represented by **(AIPMT-2005)**

(1) dN/dt = rN (2) dt/dN = rN (3) dN/rN = dt (4) rN/dN = dt

**10.** Animals have innate ability to escape from predation. Select the incorrect example **(AIPMT-2005)**

(1) Colour change in Chameleon

(2) Enlargement of body by swallowing air in Puffer fish

(3) Poison fangs of snakes

(4) Melanin in moths

**11.** Which is not true for species **(AIPMT-2005)**

(1) Members of species can interbreed

(2) Each species is reproductively isolated from every other species

(3) Gene flow does not occur between populations of a species

(4) Variations occur among members of a species.

**12.** Niche overlap is **(AIPMT-2006)**

(1) Mutualism between two species (2) Active cooperation between two species

(3) Two different parasites on same host (4) Sharing resources between two species.

**13.** Praying Mantis is a good example of **(AIPMT-2006)**

(1) Camouflage (2) Warning colouration

(3) Mullerian mimicry (4) Social insect

**14.** Annual migration does not occur in case of **(AIPMT-2006)**

(1) Arc Tern (2) Salamander (3) Salmon (4) Siberian Crane

**15.** Geometric representation of age structure is a characteristic of **(AIPMT-2007)**

(1) Biotic community (2) Population (3) Ecosystem (4) Landscape

**16.** Population of an insect species increases explosively during rainy season and then disappears at the end of the season. It shows **(AIPMT-2007)**

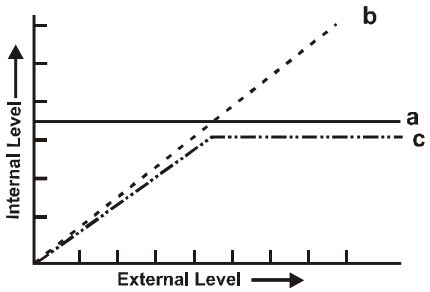
(1) Food plants mature and die at the end of rainy season

(2) Population of predators increases enormously

(3) Population growth curve is J-shaped

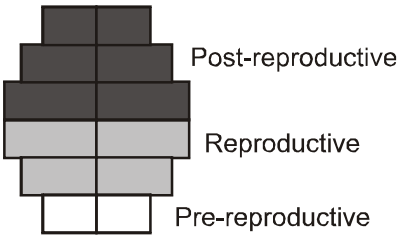
(4) Population growth curve is S-shaped.

**17.** The figure given below is a diagrammatic representation of response of organisms to abiotic factors. What do a, b and c represent respectively. **(AIPMT-2010)**




| | (a) | (b) | (c) |
|---|---|---|---|
| (1) | Regulator | partial regulator | conformer |
| (2) | Partial regulator | Regulator | conformer |
| (3) | Regulator | conformer | partial regulator |
| (4) | Conformer | Regulator | partial regulator |

**18.** What type of human population is represented by the following age pyramid **(AIPMT Pre.-2011)**




(1) Vanishing population (2) Stable population
(3) Declining population (4) Expanding population

**19.** Mass of living matter at a trophic level in an area at any time is called **(AIPMT Pre.-2011)**

(1) Standing crop (2) Detritus (3) Humus (4) Standing state

**20.** The logistic population growth is expressed by the equation: **(AIPMT mains-2011)**

(1) $dt/dN = Nr\left(\frac{K-N}{K}\right)$ (2) $dN/dt = rN\left(\frac{K-N}{K}\right)$ (3) $dN/dt = rN$ (4) $dN/dt = rN\left(\frac{N-K}{N}\right)$

**21.** People who have migrated from the planes to an area adjoining Rohatang Pass about six months back: **(AIPMT Pre.-2012)**

(1) have more RBCs and their haemoglobin has a lower binding affinity to $O_2$.
(2) are not physically fit to play games like football.
(3) suffer from altitude sickness with symptoms like nausea, fatigue, etc.
(4) have the usual RBC count but their haemoglobin has very high binding affinity to $O_2$.

**22.** *Cuscuta* is an example of: **(AIPMT Mains-2012)**

(1) Ectoparasitism (2) Brood parasitism (3) Predation (4) Endoparasitism

**23.** Which of the following are likely to be present in deep sea water? **(NEET-2013)**

(1) Eubacteria (2) Blue-green algae (3) Saprophytic fungi (4) Archaebacteria

**24.** A sedentary sea anemone gets attached to the shell lining of hermit crab. The association is: **(NEET-2013)**

(1) Symbiosis (2) Commensalism (3) Amensalism (4) Ectoparasitism

**25.** A biologist studied the population of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20 and emigration 30. The net increase in population is: **(NEET-2013)**

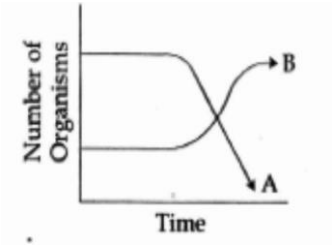
(1) 15 (2) 05 (3) zero (4) 10

**26.** Just as a person moving from Delhi to Shimla to escape the heat for the duration of hot summer, thousands of migratory birds from Siberia and other extremely cold northern regions move to: **(AIPMT-2014)**

(1) Western Ghat (2) Meghalaya

(3) Corbett National Park (4) Keolado National Park

**27.** The following graph depicts changes in two populations (A and B) of herbivores in a grassy field. A possible reason for these is that: **(AIPMT-2015)**




(1) Population B competed more successfully for food than population A

(2) Population A produced more offspring than population B

(3) Population A consumed the members of population B

(4) Both plant populations in this habitat decreased

**28.** When does the growth rate of a population following the logistic model equal zero? The logistic model is given as dN/dt = rN(1-N/K) : **(NEET-1-2016)**

(1) when death rate is greater than birth rate.

(2) when N/K is exactly one.

(3) when N nears the carrying capacity of the habitat.

(4) when N/K equals zero.

**29.** A system of rotating crops with legume or grass pasture to improve soil structure and fertility is called:

(1) Shifting agriculture (2) Ley farming **(NEET-1-2016)**

(3) Contour farming (4) Strip farming

**30.** Gause's principle of competitive exclusion states that: **(NEET-1-2016)**

(1) Larger organisms exclude smaller ones through competition.

(2) More abundant species will exclude the less abundant species through competition.

(3) Competition for the same resources excludes species having different food preferences.

(4) No two species can occupy the same niche indefinitely for the same limiting resources.

**31.** Which one of the following characteristics is not shared by birds and mammals? **(NEET-1-2016)**

(1) Warm blooded nature (2) Ossified endoskeleton

(3) Breathing using lungs (4) Viviparity

**32.** It is much easier for a small animal to run uphill than for a large animal, because: **(NEET-1-2016)**
(1) The efficiency of muscles in large animals is less than in the small animals.
(2) It is easier to carry a small body weight.
(3) Smaller animals have a higher metabolic rate.
(4) Small animals have a lower $O_2$ requirement.

**33.** Which of the following is correct for r-selected species? **(NEET-2-2016)**
(1) Small number of progeny with large size (2) Large number of progeny with small size
(3) Large number of progeny with large size (4) Small number of progeny with small size

**34.** If '+' sign is assigned to beneficial interaction, '-' sign to detrimental and '0' sign to neutral interaction, then the population interaction represented by '+' '-' refers to **(NEET-2-2016)**
(1) parasitism (2) mutualism (3) amensalism (4) commensalism

**35.** Conifers are adapted to tolerate extreme environmental conditions because of **(NEET-2-2016)**
(1) presence of vessels (2) broad hardy leaves
(3) superficial stomata (4) thick cuticle

**36.** The principle of competitive exclusion was stated by **(NEET-2-2016)**
(1) Verhulst and Pearl (2) C. Darwin (3) G. F. Gause (4) MacArthur

**37.** Asymptote in a logistic growth curve is obtained when : **(NEET-2017)**
(1) The value of 'r' approaches zero (2) K = N
(3) K > N (4) K < N

**38.** Alexander Von Humbolt described for the first time : **(NEET-2017)**
(1) Ecological Biodiversity (2) Laws of limiting factor
(3) Species are relationship (4) Population Growth equation

**39.** Mycorrhizae are the example of **(NEET-2017)**
(1) Fungistasis (2) Amensalism (3) Antibiosis (4) Mutualism

**40.** In a growing population of a country, **(NEET-2018)**
(1) pre-reproductive individuals are more than the reproductive individuals
(2) pre-reproductive individuals are less, than the reproductive individuals.
(3) reproductive and pre-reproductive individuals are equal in number.
(4) reproductive individuals are less than the post-reproductive individuals.

**41.** Which one of the following population interactions is widely used in medical science for the production of antibiotics? **(NEET-2018)**
(1) Commensalism (2) Amensalism (3) Parasitism (4) Mutualism

**42.** Which one of the following-plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other? **(NEET-2018)**
(1) *Hydrilla* (2) *Viola* (3) Banana (4) *Yucca*

**43.** Natality refers to **(NEET-2018)**
(1) Death rate (2) Number of individuals entering a habitat
(3) Number of individuals leaving the habitat (4) Birth rate

**44.** Match Column-I with Column-II. **(NEET-1-2019)**

| **Column-I** | **Column-II** |
|---|---|
| (a) Saprophyte | (i) Symbiotic association of fungi with plant roots |
| (b) Parasite | (ii) Decomposition of dead organic materials |
| (c) Lichens | (iii) Living on living plants or animals |
| (d) Mycorrhiza | (iv) Symbiotic association of algae and fungi |

Choose the correct answer from the options given below:

| | (a) | (b) | (c) | (d) |
|---|---|---|---|---|
| (1) | (ii) | (iii) | (iv) | (i) |
| (2) | (i) | (ii) | (iii) | (iv) |
| (3) | (iii) | (ii) | (i) | (iv) |
| (4) | (ii) | (i) | (iii) | (iv) |

**45.** Carnivorous animals - lions and leopards, occupy the same niche but lions predate mostly larger animals and leopards take smaller ones. This mechanism of competition is referred to as – **(NEET-2-2019)**

(1) Character displacement (2) Altruism
(3) Resource partitioning (4) Competitive exclusion

**46.** Decline in the population of Indian native fishes due to introduction of *Clarias gariepinus* in river Yamuna can be categorised as **(NEET-2-2019)**

(1) Co-extinction (2) Habitat fragmentation
(3) Over exploitation (4) Alien species invasion

**47.** Between which among the following, the relationship is not an example of commensalism? **(NEET-2-2019)**

(1) Orchid and the tree on which it grows (2) Cattle Egret and grazing cattle
(3) Sea Anemone and Clown fish (4) Female wasp and fig species

## PART - II : AIIMS QUESTION (PREVIOUS YEARS )

**1.** Mutualism occurs between **(AIIMS-2001)**

(1) Butterfly and flower (2) Escherichia coli and man
(3) Zoochlorellae and Hydra (4) Hermit Crab and Sea Anemone

**2.** Abundance of a species population within its habitat is called **(AIIMS-2002)**

(1) Absolute density (2) Regional density (3) Relative density (4) Niche density

**3.** A matching pair is **(AIIMS-2003)**

(1) Shark and sucker fish–Amensalism
(2) Algae and Fungi in lichens–Mutualism
(3) Orchids growing on trees–Parasitism
(4) Cuscuta (Dodder) growing on other flowering plants – Epihytism

**4.** What is a keystone species **(AIIMS-2007)**

(1) A species which make up only a small proportion of total biomass of a community yet has a huge impact on the community's organisation and survival.
(2) A common species that has plenty of biomass, yet has fairly low impact on the community's organisation.
(3) A rare species that has minimal impact on the biomass and on other species in the community
(4) A large dominant species that constitutes a large proprtion of the biomass and which affect many other species.

**5.** For better survival of human Indian population, which is the most important step? **(AIIMS-2011)**

(1) Afforestation (2) Reduction in population density

(3) conservation of wild life including tribals (4) Both (1) and (3)

**6.** The formula for exponential population growth is **(AIIMS-2013)**

(1) dN/rN=dt (2) rN /dN = dt (3) dN / dt = rN (4) dt /dN = rN

**7.** Which of the following association shows mutualism? **(AIIMS-2014)**

(1) Fig and wasp (2) Barnacles on whale

(3) Roundworms in human intestine (4) Orchids on mango tree

**8.** Match **Column-I** with **Column-II** and select the correct option from the codes given below.

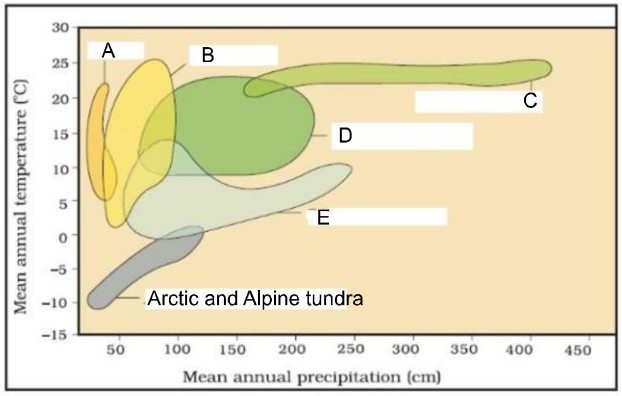
**(AIIMS-2016)**

| **Column - I** | **Column - II** |
|---|---|
| A. Commensalism | (i) One inhibited, other unaffected |
| B. Parasitism | (ii) One benefitted, other unaffected |
| C. Mutualism | (iii) Both are benefited |
| D. Amensalism | (iv) One benefitted, other harmed |

(1) A - (iv), B - (ii), C - (iii), D - (i) (2) A - (iii), B - (iv), C - (ii), D - (i)

(3) A - (ii), B - (iv), C - (iii), D - (i) (4) A - (ii), B - (iv), C - (i), D - (iii)

**9.**




Select the correct labelling of above diagram **(AIIMS-I-2018)**

(1) A– Desert , B– Grassland, C– Tropical rain forest, D- Temperate forest, E–Coniferous Forest

(2) A– Grassland, B– Desert, C– Tropical rain forest, D- Coniferous Forest, E– Temperate forest

(3) A– Coniferous Forest, B– Grassland, C– Tropical rain forest, D- Temperate forest, E– Desert

(4) A– Tropical rain forest, B– Grassland, C– Desert, D- Coniferous Forest, E– Temperate forest

**10.** Match the column **(AIIMS-I-2018)**

| | a | b | c |
|---|---|---|---|
| (i) | + | + | (1) Commensalism |
| (ii) | + | – | (2) Competition |
| (iii) | – | – | (3) Parasitism |
| (iv) | + | 0 | (4) Mutualism |

(1) (i) 1, (ii) 2, (iii) 3, (iv) 4 (2) (i) 2, (ii) 3, (iii) 1, (iv) 4

(3) (i) 4, (ii) 3, (iii) 2, (iv) 1 (4) (i) 3, (ii) 2, (iii) 1, (iv) 4

**11._** **(AIIMS-III-2018)**

| Column-I | Column-II |
|---|---|
| (i) + – | (A) Amensalism |
| (ii) + 0 | (B) Parasitisim |
| (iii) + + | (C) Commensalism |
| (iv) – 0 | (D) Mutualism |

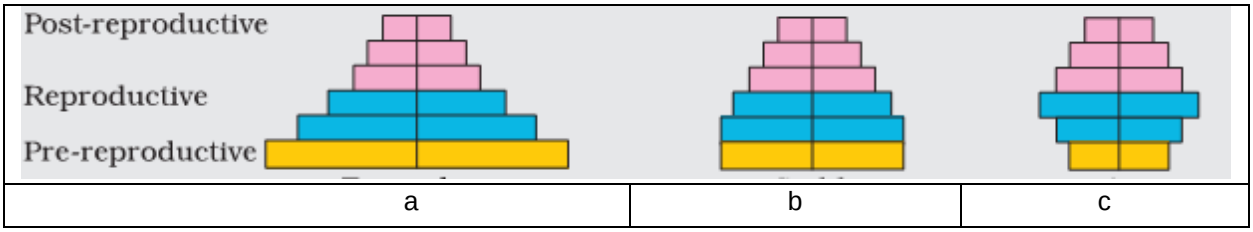
(1) i–B, ii–A, iii–D, iv–C
(2) i–A, ii–B, iii–D, iv–C
(3) i–B, ii–A, iii–C, iv–D
(4) i–B, ii–C, iii–D, iv–A

**12.** Match the correct column **(AIIMS-II-2019)**

| (I) | (II) | (III) |
|---|---|---|
| (a) Parasitism | (i) –, 0 | (A) Both get benefitted |
| (b) Amensalism | (ii) –, – | One get harmed other has no effect |
| (c) Competition | (iii) +, – | (C) Both get harmed |
| (d) Mutualism | (iv) +, + | (D) One is harmed and second is benefited |

(1) a - iii – D, b - i – B, c - ii – C, d - iv - A
(2) a - ii – C, b - i – B, c - iii – D, d - iv - A
(3) a - iii – D, b - i – A, c - ii – C, d - iv - B
(4) a - iii – A, b - i – B, c - ii – D, d - iv – A

**13.**




| a | b | c |
|---|---|---|

Select the correct option w.r.t. Age pyramids. **(AIIMS-III,IV-2019)**
(1) a - Expanding, b - stable, c - Declining
(2) a - stable, b - Expanding, c - Declining
(3) a - stable, b - Declining, c - Expanding
(4) a - Declining, b - stable, c – Expanding

**14.** Select the correct match **(AIIMS-III-IV2019)**

| (I) | (II) | (III) |
|---|---|---|
| (a) + | (i) – | (P) Amensalism |
| (b) – | (ii) – | (Q) Commensalism |
| (c) – | (iii) 0 | (R) Predation |
| (d) + | (iv) 0 | (S) Competition |

(1) a - iv – Q, b - iii – P, c - ii – S, d - i - R
(2) a - i – Q, b - ii – P, c - iii – S, d - iv - R
(3) a - i – Q, b - iii – P, c - ii – S, d - iv - R
(4) a - iv – Q, b - ii – P, c - iii – S, d - i – R

**15.** Match the following: **(AIIMS-III-2019)**

| Column-I | Column-II |
|---|---|
| (a) Ranthambore National Park | (i) Assam |
| (b) Kaziranga National Park | (ii) Rajasthan |
| (c) Jim corbett National Park | (iii) Orissa |
| (d) Nandan kanan zoological Park | (iv) Uttarakhand |

(1) a–i, b–ii, c–iii, d–iv
(2) a–ii, b–iii, c–iv, d–i
(3) a–ii, b–i, c–iv, d–iii
(4) a–iii, b–ii, c–i, d–iv

# Answers

## EXERCISE - 1

### SECTION-A

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (2) | **2.** | (2) | **3.** | (3) | **4.** | (2) | **5.** | (3) | **6.** | (1) | **7.** | (4) |
| **8.** | (3) | **9.** | (2) | **10.** | (1) | **11.** | (1) | **12.** | (1) | **13.** | (4) | **14.** | (3) |
| **15.** | (1) | **16.** | (1) | **17.** | (4) | **18.** | (4) | **19.** | (4) | **20.** | (4) | **21.** | (1) |
| **22.** | (4) | **23.** | (1) | **24.** | (1) | **25.** | (2) | **26.** | (2) | **27.** | (1) | **28.** | (4) |

### SECTION-B

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (3) | **2.** | (2) | **3.** | (1) | **4.** | (3) | **5.** | (1) | **6.** | (4) | **7.** | (4) |
| **8.** | (2) | **9.** | (2) | **10.** | (4) | **11.** | (2) | **12.** | (1) | **13.** | (1) | **14.** | (2) |
| **15.** | (4) | **16.** | (3) | **17.** | (1) | **18.** | (1) | **19.** | (1) | **20.** | (3) | **21.** | (2) |
| **22.** | (3) | **23.** | (4) | **24.** | (4) | **25.** | (2) | **26.** | (1) | **27.** | (2) | **28.** | (4) |
| **29.** | (1) | **30.** | (2) | **31.** | (2) | **32.** | (4) | **33.** | (3) | **34.** | (2) | **35.** | (3) |
| **36.** | (1) | **37.** | (3) | **38.** | (4) | **39.** | (3) | **40.** | (4) | **41.** | (4) | **42.** | (3) |
| **43.** | (2) | **44.** | (4) | **45.** | (2) | | | | | | | | |

## MISCELLANEOUS QUESTIONS

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (4) | **2.** | (3) | **3.** | (3) | **4.** | (3) | **5.** | (2) | **6.** | (2) | **7.** | (3) |
| **8.** | (3) | **9.** | (1) | **10.** | (1) | **11.** | (2) | **12.** | (2) | **13.** | (3) | **14.** | (1) |
| **15.** | (4) | **16.** | (1) | **17.** | (4) | **18.** | (1) | **19.** | (1) | **20.** | (1) | **21.** | (4) |
| **22.** | (4) | **23.** | (2) | **24.** | (1) | **25.** | (2) | **26.** | (4) | **27.** | (2) | **28.** | (2) |
| **29.** | (4) | **30.** | (1) | | | | | | | | | | |

## EXERCISE - 2

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (4) | **2.** | A = 1 , B = 5 , C = 4 , D = 1 , E = 3, F = 2 | | | | | | | **3.** | (3) | **4.** | (1) |
| **5.** | (1) | **6.** | (3) | **7.** | (3) | **8.** | (1) | **9.** | (1) | **10.** | (3) | **11.** | (1) |
| **12.** | (2) | | | | | | | | | | | | |

## EXERCISE - 3

### PART- I

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (3) | **2.** | (2) | **3.** | (3) | **4.** | (2) | **5.** | (4) | **6.** | (4) | **7.** | (1) |
| **8.** | (1) | **9.** | (1) | **10.** | (3) | **11.** | (3) | **12.** | (4) | **13.** | (1) | **14.** | (2) |
| **15.** | (2) | **16.** | (3) | **17.** | (3) | **18.** | (3) | **19.** | (1) | **20.** | (2) | **21.** | (1) |
| **22.** | (1) | **23.** | (4) | **24.** | (2) | **25.** | (3) | **26.** | (4) | **27.** | (1) | **28.** | (2) |
| **29.** | (2) | **30.** | (4) | **31.** | (4) | **32.** | (3) | **33.** | (2) | **34.** | (1) | **35.** | (4) |
| **36.** | (3) | **37.** | (2) | **38.** | (3) | **39.** | (4) | **40.** | (1) | **41.** | (2) | **42.** | (4) |
| **43.** | (4) | **44.** | (1) | **45.** | (3) | **46.** | (4) | **47.** | (4) | | | | |

### PART- II

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (3) | **2.** | (4) | **3.** | (2) | **4.** | (1) | **5.** | (4) | **6.** | (3) | **7.** | (1) |
| **8.** | (3) | **9.** | (1) | **10.** | (3) | **11.** | (4) | **12.** | (1) | **13.** | (1) | **14.** | (1) |
| **15.** | (3) | | | | | | | | | | | | |