

SUBJECT CODE <b>C-28-17</b>		SUBJECT <b>ENVIRONMENTAL SCIENCES</b>		PAPER <b>III</b>	
HALL TICKET NUMBER			QUESTION BOOKLET NUMBER <b>300243</b>		
OMR SHEET NUMBER					
DURATION <b>2 Hour 30 Minutes</b>		MAXIMUM MARKS <b>150</b>	NUMBER OF PAGES <b>16</b>	NUMBER OF QUESTIONS <b>75</b>	

This is to certify that, the entries made in the above portion are correctly written and verified.

Candidate's Signature

Name and Signature of Invigilator

**INSTRUCTIONS FOR THE CANDIDATES**

- Write your Hall Ticket Number in the space provided on the top of this page.
- This paper consists of seventy five multiple-choice type of questions.
- At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to **open the booklet and compulsorily examine it as below**:
  - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
  - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
  - After this verification is over, the Test Booklet Number should be entered in the OMR Sheet and the OMR Sheet Number should be entered on this Test Booklet.
- Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.  
**Example :** (A) (B) (C) (D)  
where (C) is the correct response.
- Your responses to the items are to be indicated in the **OMR Answer Sheet given to you**. If you mark at any place other than in the circle in the OMR Answer Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done in the end of this booklet.
- If you write your name or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
- The candidate must handover the OMR Answer Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. The candidate is allowed to take away the carbon copy of OMR Sheet and used Question Paper Booklet at the end of the examination.
- Use only Blue/Black Ball point pen.
- Use of any calculator or log table etc., is prohibited.
- There is no negative marks for incorrect answers.

**అభ్యర్థులకు నూచనలు**

- ఈ పుట పై భాగంలో ఇవ్వబడిన స్థలంలో మీ హాల్ టికెట్ నంబరు రాయండి.
- ఈ ప్రశ్న పత్రము ద్వైబద్ధ బహుళైచ్ఛిక ప్రశ్నలను కలిగి ఉంది.
- పరీక్ష ప్రారంభమున ఈ ప్రశ్నాపత్రము మీకు ఇవ్వబడుతుంది. మొదటి ఐదు నిమిషములలో ఈ ప్రశ్నాపత్రమును తెరిచి కింద తెలిపిన అంశాలను తప్పనిసరిగా సరిచూసుకోండి.
  - ఈ ప్రశ్న పత్రమును చూడడానికి కవర్ పేజీ అంచన ఉన్న కాగితపు సీలును పీచించండి. స్టిక్కర్ సీలులేని మరియు ఇదివరకే తెరిచి ఉన్న ప్రశ్నాపత్రమును మీరు అంగీకరించవద్దు.
  - కవరు పేజీ పై ముద్రించిన సమాచారం ప్రకారం ఈ ప్రశ్నపత్రములోని పేజీల సంఖ్యను మరియు ప్రశ్నల సంఖ్యను సరిచూసుకోండి. పేజీల సంఖ్యకు సంబంధించి గానీ లేదా సూచించిన సంఖ్యలో ప్రశ్నలు లేకపోవుట లేదా నిజప్రతి కాకపోవుట లేదా ప్రశ్నలు క్రమపద్ధతిలో లేకపోవుట లేదా ఏవైనా తేడాలు ఉండుట వంటి దోషపూరితమైన ప్రశ్న పత్రాన్ని వెంటనే మొదటి ఐదు నిమిషాల్లో పరీక్షా పర్యవేక్షకునికి తిరిగి ఇచ్చివేసి దానికి బదులుగా సరిగ్గా ఉన్న ప్రశ్నపత్రాన్ని తీసుకోండి. తదనంతరం ప్రశ్నపత్రము మార్చబడదు అదనపు సమయం ఇవ్వబడదు.
  - పై విధంగా సరిచూసుకొన్న తర్వాత ప్రశ్నాపత్రం సంఖ్యను OMR పత్రము పై అదేవిధంగా OMR పత్రము సంఖ్యను ఈ ప్రశ్నాపత్రము పై నిర్దిష్టస్థలంలో రాయవలెను.
- ప్రతి ప్రశ్నకు నాలుగు ప్రత్యామ్నాయ ప్రతిస్పందనలు (A), (B), (C) మరియు (D) లుగా ఇవ్వబడ్డాయి. ప్రతి ప్రశ్నకు సరైన ప్రతిస్పందనను ఎన్నుకొని కింద తెలిపిన విధంగా OMR పత్రములో ప్రతి ప్రశ్నా సంఖ్యకు ఇవ్వబడిన నాలుగు వృత్తాల్లో సరైన ప్రతిస్పందనను సూచించే వృత్తాన్ని బాల్ పాయింట్ పెన్ తో కింద తెలిపిన విధంగా పూరించాలి.  
**ఉదాహరణ :** (A) (B) (C) (D)  
(C) సరైన ప్రతిస్పందన అయితే
- ప్రశ్నలకు ప్రతిస్పందనలను ఈ ప్రశ్నపత్రముతో ఇవ్వబడిన OMR పత్రము పైన ఇవ్వబడిన వృత్తాల్లోనే పూరించి గుర్తించాలి. అలాకాక సమాధాన పత్రంపై వేరొక చోట గుర్తిస్తే మీ ప్రతిస్పందన మూల్యాంకనం చేయబడదు.
- ప్రశ్న పత్రము లోపల ఇచ్చిన సూచనలను జాగ్రత్తగా చదవండి.
- చిత్తువనివి ప్రశ్నపత్రము చివర ఇచ్చిన ఖాళీస్థలములో చేయాలి.
- OMR పత్రము పై నిర్దేశ స్థలంలో సూచించవలసిన వివరాలు తప్పించి ఇతర స్థలంలో మీ గుర్తింపును తెలిపే విధంగా మీ పేరు రాయడం గానీ లేదా ఇతర చిహ్నాలను పెట్టడం గానీ చేసినట్లుంటే మీ అనర్హతకు మీరే బాధ్యులవుతారు.
- పరీక్ష పూర్తయిన తర్వాత మీ OMR పత్రాన్ని తప్పనిసరిగా పరీక్ష పర్యవేక్షకుడికి ఇవ్వాలి. వాటిని పరీక్ష గది బయటకు తీసుకువెళ్లకూడదు. పరీక్ష పూర్తయిన తరువాత అభ్యర్థులు ప్రశ్న పత్రాన్ని, OMR పత్రం యొక్క కార్బన్ కాపీని తీసుకువెళ్లవచ్చు.
- నీలి/నల్ల రంగు బాల్ పాయింట్ పెన్ మాత్రమే ఉపయోగించాలి.
- లాగరిథమ్ టేబుల్స్, క్యాలిక్యులేటర్లు, ఎలక్ట్రానిక్ పరికరాలు మొదలగునవి పరీక్షగదిలో ఉపయోగించడం నిషేధం.
- తప్పు సమాధానాలకు మార్కుల తగ్గింపు లేదు.

SEAL



DO NOT WRITE HERE





## ENVIRONMENTAL SCIENCES

### Paper - III

1. Gir Lion project is located in :  
(A) Assam  
(B) Gujarat  
(C) Andaman and Nicobar  
(D) Jammu and Kashmir
2. Examples for Biofertilizers are :  
(a) Urea  
(b) NPK  
(c) *Rhizobium*  
(d) Mycorrhizae  
**Codes :**  
(A) (a), (c) are correct  
(B) (b), (c) are correct  
(C) (c), (d) are correct  
(D) (b), (d) are correct
3. **Assertion (A) :**  
Respiratory disorders are more prevalent in urban areas.  
**Reason (R) :**  
Urban areas have vast open spaces for good ventilation.  
**Codes :**  
(A) (A) and (R) are true and (R) is the correct explanation of (A)  
(B) Both (A) and (R) are true, but (R) is not the correct explanation of (A)  
(C) (A) is true but (R) is false  
(D) (A) is false but (R) is true
4. Match the following Indices in List - I with the respective aspect in List - II.  
**List - I**                      **List - II**  
(a) Jaccard's            (i) Species diversity  
(b) Margalef's        (ii) Species Similarity  
(c) Simpson's        (iii) Species Richness  
(d) Shannon's        (iv) Species Dominance  
**Codes :**  
(a) (b) (c) (d)  
(A) (iv) (ii) (i) (iii)  
(B) (ii) (iii) (iv) (i)  
(C) (iii) (iv) (i) (ii)  
(D) (iii) (ii) (i) (iv)
5. Find the main objective(s) of the Mission Kakatiya.  
(a) To clean the pollution in the tanks.  
(b) To enhance the development of agrobased income for small and marginal farmers.  
(c) To recharge the ground waters of the region.  
(d) To restore the capacity of tanks for storage and utilization.  
**Codes :**  
(A) (a), (c) and (d) are correct  
(B) (a) and (b) are correct  
(C) (b) and (c) are correct  
(D) (b) and (d) are correct
6. Mega - diversity area in India is :  
(A) Tamilnadu  
(B) Central India  
(C) North Eastern Region  
(D) Western India
7. The following zones are present in Lake Ecosystem :  
(a) Littoral zone  
(b) Limnetic zone  
(c) Profundal zone  
(d) Lotic zone  
**Codes :**  
(A) (c), (d) are correct  
(B) (a), (d) are correct  
(C) (b), (d) are correct  
(D) (a), (b), (c) are correct



8. **Assertion (A) :**  
Green House Gases manifest global warming.

**Reason (R) :**  
Aerosols brings global cooling.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

9. Match the following pollution indicators :

- | List - I                         | List - II                        |
|----------------------------------|----------------------------------|
| (a) Fecal contamination of water | (i) Algal bloom                  |
| (b) Sulphur dioxide              | (ii) White spots on tobacco leaf |
| (c) Eutrophication               | (iii) <i>E.Coli</i>              |
| (d) Ozone pollution              | (iv) Lichens death               |

**Codes :**

- |     | (a)   | (b)   | (c)   | (d)   |
|-----|-------|-------|-------|-------|
| (A) | (iv)  | (ii)  | (iii) | (i)   |
| (B) | (iii) | (iv)  | (i)   | (ii)  |
| (C) | (ii)  | (i)   | (iv)  | (iii) |
| (D) | (i)   | (iii) | (ii)  | (iv)  |

10. Identify the correct statements :

- (a) The indicator bacterium should be suitable for the analysis of all types of water
- (b) The indicator bacterium should be present whenever enteric pathogens are present
- (c) The indicator bacterium should not reproduce in the contaminated water and produce an inflated value
- (d) The assay procedure for the indicator should have great specificity

**Codes :**

- (A) (a), (b), (c) are correct
- (B) (a), (c), (d) are correct
- (C) (a), (b), (d) are correct
- (D) (a), (b), (c), (d) are correct

11. Correct example for food chain is :

- (A) Insect → Weed → Bird → Frog
- (B) Frog → Bird → Weed → Insect
- (C) Weed → Insect → Frog → Bird
- (D) Bird → Frog → Insect → Weed

12. Examples for solid biofuels are :

- (a) Municipal REFUSE
- (b) Soil
- (c) Litter
- (d) Wood and straw

**Codes :**

- (A) (a), (c) are correct
- (B) (c), (b) are correct
- (C) (a), (d) are correct
- (D) (b), (c), (d) are correct

13. **Assertion (A) :**

Increased use of toxic agricultural chemicals is a matter of great concern.

**Reason (R) :**

It is possible to combat pests and diseases with integrated pest management (IPM) that combines crop rotation, trap crops, natural repellents, and biological controls.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

14. Match the following :

- | List - I  | List - II               |
|-----------|-------------------------|
| (a) DU    | (i) A unit of Radiation |
| (b) Joule | (ii) A unit of Ozone    |
| (c) db    | (iii) A unit of Energy  |
| (d) Rem   | (iv) A unit of Noise    |

**Codes :**

- |     | (a)   | (b)   | (c)   | (d)  |
|-----|-------|-------|-------|------|
| (A) | (ii)  | (iii) | (iv)  | (i)  |
| (B) | (i)   | (iv)  | (iii) | (ii) |
| (C) | (iii) | (i)   | (ii)  | (iv) |

15. Arrange the following districts of Telangana state based on the decreasing frequency of Droughts :

- (a) Warangal
- (b) Mahaboob nagar
- (c) Nalgonda
- (d) Medak

**Codes :**

- (A) (c), (b), (d), (a)
- (B) (a), (d), (c), (b)
- (C) (d), (a), (b), (c)
- (D) (b), (c), (d), (a)

16. In which year Bhopal Gas Tragedy Occurred :

- (A) 1982                      (B) 1984
- (C) 1970                      (D) 1986

17. Types of solid waste from residential area include :

- (a) Food Wastes
- (b) Treatment plants
- (c) Ashes
- (d) Residual sludge

**Codes :**

- (A) (a), (c) are correct
- (B) (b), (a) are correct
- (C) (d), (b) are correct
- (D) (c), (d) are correct

18. **Assertion (A) :**

Environmental carcinogens are chemicals that are able to bind to DNA and prevent it from functioning properly or agents such as radiation, that can strike the DNA and disrupt it.

**Reason (R) :**

The WHO estimates that 25% of cancers can be traced to environmental causes.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

19. Match the following material recovery from the given processing units :

**List - I**

**List - II**

- |                     |                           |
|---------------------|---------------------------|
| (a) Silver          | (i) Copper smelting       |
| (b) Sulphur         | (ii) Soap factories       |
| (c) SO <sub>2</sub> | (iii) Power plants        |
| (d) Glycerine       | (iv) Photographic filming |

**Codes :**

- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (ii)  | (i)   | (iii) | (iv)  |
| (B) | (iv)  | (iii) | (i)   | (ii)  |
| (C) | (iii) | (iv)  | (ii)  | (i)   |
| (D) | (i)   | (ii)  | (iv)  | (iii) |

20. Identify the sequence of the following :

- (a) Neutralization
- (b) Equalization
- (c) Settling
- (d) Coagulation

**Codes :**

- (A) (d), (c), (b), (a)
- (B) (b), (a), (d), (c)
- (C) (c), (d), (a), (b)
- (D) (a), (b), (c), (d)

21. Causes of Floods are :

- (a) Heavy Rains
- (b) Land slides
- (c) Hail storm
- (d) Squall

**Codes :**

- (A) (a), (c) are correct
- (B) (c), (d) are correct
- (C) (b), (d) are correct
- (D) (a), (b) are correct



22. **Assertion (A) :**  
Environmental resistance consists of all factors that act to limit the growth of a population.

**Reason (R) :**

The growth rate of population decreases as its size nears the carrying capacity of its environment because resources such as food and water begin to dwindle.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

23. Match the following :

**List - I**

**List - II**

- |               |       |                |
|---------------|-------|----------------|
| (a) Aflatoxin | (i)   | Metal mining   |
| (b) Nitrate   | (ii)  | Paint          |
| (c) Lead      | (iii) | Drinking water |
| (d) Mercury   | (iv)  | Food           |

**Codes :**

- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (i)   | (ii)  | (iii) | (iv)  |
| (B) | (iii) | (i)   | (iv)  | (ii)  |
| (C) | (iv)  | (iii) | (ii)  | (i)   |
| (D) | (ii)  | (iv)  | (i)   | (iii) |

24. Identify the following sequence beginning with high acidic pH :

- (a) Blood
- (b) Cool drink (Carbonated)
- (c) Milk
- (d) Rain water (Normal)

**Codes :**

- (A) (d), (a), (b), (c)
- (B) (c), (b), (a), (d)
- (C) (b), (d), (c), (a)
- (D) (a), (c), (d), (b)

25. Example for non-fossil fuel is :

- (A) Coal
- (B) Petroleum
- (C) Natural Gas
- (D) Solar Energy

26. Benefits of rain water harvesting are :

- (a) Floods and Hailstorms
- (b) Increases water availability
- (c) Checks declining water table
- (d) Fastens soil erosion

**Codes :**

- (A) (a), (d) are correct
- (B) (b), (a) are correct
- (C) (b), (c) are correct
- (D) (a), (c) are correct

27. **Assertion (A) :**

The mosaic forms expresses the relationships of chronosequence succession.

**Reason (R) :**

The patches represent different stages of recovery from fire, wind-throw, or other disturbances to the matrix type.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true and (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

28. Match the following :

**List - I**

**List - II**

- |                      |       |                  |
|----------------------|-------|------------------|
| (a) <i>Eichornia</i> | (i)   | Rooted floating  |
| (b) <i>Hydrilla</i>  | (ii)  | Reed swamp stage |
| (c) <i>Typha</i>     | (iii) | Rooted submerged |
| (d) <i>Nymphaea</i>  | (iv)  | Free floating    |

**Codes :**

- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (i)   | (ii)  | (iii) | (iv)  |
| (B) | (ii)  | (i)   | (iv)  | (iii) |
| (C) | (iii) | (iv)  | (i)   | (ii)  |
| (D) | (iv)  | (iii) | (ii)  | (i)   |



29. Identify the sequence of radiation exposure to man (external+internal) from the normal background in increasing order :

- (a) Potassium - 10
- (b) Rubidium - 87
- (c) Uranium - 238
- (d) Thorium - 232

**Codes :**

- (A) (b), (a), (d), (c)
- (B) (c), (d), (a), (b)
- (C) (a), (b), (c), (d)
- (D) (d), (c), (b), (a)

30. First Earth summit for Environment Protection was held at :

- (A) Delhi
- (B) Canada
- (C) Rio-de-Jenerio
- (D) Stockholm

31. Individual contribution of greenhouse gases for global warming are :

- (a) Oxygen 60%
- (b) Carbon dioxide 55%
- (c) Hydrogen 40%
- (d) Methane 20%

**Codes :**

- (A) (a), (c) are correct
- (B) (b), (c) are correct
- (C) (b), (d) are correct
- (D) (c), (d) are correct

32. Assertion (A) :

A stable population in nature is the result of the interaction between factors tending to increase population (biotic potential) and factors tending to decrease population (environmental resistance).

Reason (R) :

Predators in population control is a huge diversity of parasitic organisms.

**Codes :**

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

33. Match the following vectors with the respective diseases :

**List - I**

**List - II**

- |                |                         |
|----------------|-------------------------|
| (a) Mosquito   | (i) Schistosomiasis     |
| (b) Tsetse fly | (ii) River blindness    |
| (c) Black fly  | (iii) Sleeping sickness |
| (d) Snail      | (iv) Yellow fever       |

**Codes :**

- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (iv)  | (iii) | (ii)  | (i)   |
| (B) | (i)   | (ii)  | (iii) | (iv)  |
| (C) | (iii) | (iv)  | (i)   | (ii)  |
| (D) | (ii)  | (i)   | (iv)  | (iii) |

34. Identify the following fuels in the decreasing order of their calorific values :

- (a) Cow dung cake
- (b) Kerosene
- (c) Charcoal
- (d) LPG

**Codes :**

- (A) (b), (a), (d), (c)
- (B) (c), (d), (a), (b)
- (C) (a), (c), (b), (d)
- (D) (d), (b), (c), (a)



35. In an ecosystem, which is at the highest trophic level ?

- (A) Decomposers
- (B) Herbivores
- (C) Carnivores
- (D) Omnivores

36. Synecology deals with the study of :

- (a) Habitat
- (b) Plant Communities
- (c) Plant Composition
- (d) Organization and Development

Codes :

- (A) (a), (d) are correct
- (B) (a), (c) are correct
- (C) (a), (b) are correct
- (D) (b), (c), (d) are correct

37. Assertion (A) :

Nitrogen cycle is an endogenous biogeochemical cycle.

Reason (R) :

Atmospheric  $N_2$  can be fixed by certain prokaryotes in the soil.

Codes :

- (A) Both (A) and (R) are true, and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

38. Match the following :

List - I

- (a) Stone leprosy
- (b) Cataract
- (c) Dental caries
- (d) White patches on skin

List - II

- (i) Ozone layer destruction
- (ii) Arsenic
- (iii) Acid rain
- (iv) Fluoride deficiency

Codes :

- |     |       |       |       |       |
|-----|-------|-------|-------|-------|
|     | (a)   | (b)   | (c)   | (d)   |
| (A) | (i)   | (iii) | (ii)  | (iv)  |
| (B) | (iii) | (i)   | (iv)  | (ii)  |
| (C) | (ii)  | (iv)  | (i)   | (iii) |
| (D) | (iv)  | (ii)  | (iii) | (i)   |

39. Identify the sequence of GHGs in increasing order of their global warming potential :

- |            |            |
|------------|------------|
| (a) $CH_4$ | (b) CFC    |
| (c) $N_2O$ | (d) $CO_2$ |

Codes :

- (A) (d), (a), (c), (b)
- (B) (b), (c), (a), (d)
- (C) (c), (b), (d), (a)
- (D) (a), (d), (b), (c)

40. The following one destroys ozone layer :

- (A) Argon
- (B) Hydrogen
- (C) Oxygen
- (D) Chloro-fluro-carbon

41. Gold is found in nature :

- (a) In feldspathoid minerals
- (b) In quartz veins
- (c) In igneous rocks
- (d) In secondary alluvial deposits

Codes :

- (A) (b), (d) are correct
- (B) (a), (b), (d) are correct
- (C) (c), (a) are correct
- (D) (a), (b) are correct

42. Assertion (A) :

Soils rich in clay minerals have high amounts of organic carbon.

Reason (R) :

Clay soils tend to have low rates of decomposition.

Codes :

- (A) Both (A) and (R) are true, and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true





43. Match the following Land uses of Telangana state in List - I with their percentile extents in List - II :

List - I		List - II	
(a) Built up Area	(i)	51.38%	
(b) Agricultural	(ii)	3.16%	
(c) Waste Lands	(iii)	5.38%	
(d) Forests	(iv)	6.15%	
(e) Water bodies	(v)	22.90%	

Codes :

	(a)	(b)	(c)	(d)	(e)
(A)	(iv)	(i)	(v)	(ii)	(iii)
(B)	(iii)	(iv)	(v)	(i)	(ii)
(C)	(ii)	(iv)	(iii)	(v)	(i)
(D)	(ii)	(i)	(iii)	(v)	(iv)

44. Identify the correct statements :

- (a) Competition : Population 1  
 $\xrightarrow{\text{(negative)}}$  Population 2  
 $\xrightarrow{\text{(negative)}}$
- (b) Predation : Population 1  
 $\xrightarrow{\text{(positive)}}$  Population 2  
 $\xrightarrow{\text{(negative)}}$
- (c) Mutualism : Population 1  
 $\xrightarrow{\text{(positive)}}$  Population 2  
 $\xrightarrow{\text{(positive)}}$

Codes :

- (A) (a) and (b) are correct  
 (B) (a) and (c) are correct  
 (C) (b) and (c) are correct  
 (D) (a), (b), and (c) are correct

45. Herding cattle or other domestic animals in arid and semi-arid regions (savannah and grasslands) with people subsisting on live stock products such as milk, meat and hides is called :

- (A) Pastoralism  
 (B) Synergism  
 (C) Phagotropism  
 (D) Poikilothermism

46. Examples for Eco-friendly farming systems are :

- (a) Organic farming  
 (b) Silvi culture  
 (c) Perma culture  
 (d) Pomo culture

Codes :

- (A) (a), (b) are correct  
 (B) (a), (c) are correct  
 (C) (b), (d) are correct  
 (D) (a), (d) are correct

47. Match the following sources of Noises in List - I, with their mean levels of radiation :

List - I

List - II  
 Noise levels  
 (dBA)

- |                              |       |     |
|------------------------------|-------|-----|
| (a) Ear phones at loud level | (i)   | 70  |
| (b) Rock Music               | (ii)  | 80  |
| (c) Vaccum Cleaner           | (iii) | 90  |
| (d) Average Factory          | (iv)  | 110 |
|                              | (v)   | 130 |

Codes :

- |     | (a)   | (b)  | (c)   | (d)   |
|-----|-------|------|-------|-------|
| (A) | (i)   | (ii) | (iii) | (iv)  |
| (B) | (v)   | (iv) | (i)   | (ii)  |
| (C) | (ii)  | (v)  | (iv)  | (iii) |
| (D) | (iii) | (i)  | (v)   | (iv)  |

48. Identify the forests ordered from equator to polar regions :

- (a) Temperate deciduous forests  
 (b) Evergreen coniferous forests  
 (c) Tropical rain forests  
 (d) Arctic and alpine tundras

Codes :

- (A) (c), (a), (b), (d)  
 (B) (a), (b), (c), (d)  
 (C) (b), (a), (c), (d)  
 (D) (a), (c), (b), (d)



49. World Environment Day is on :
- (A) 5<sup>th</sup> June                      (B) 15<sup>th</sup> June  
(C) 1<sup>st</sup> June                        (D) 30<sup>th</sup> June

50. The following are used as sources of Atomic energy :

- (a) Thorium                      (b) Silver  
(c) Uranium                      (d) Nickel

**Codes :**

- (A) (b), (d) are correct  
(B) (c), (d) are correct  
(C) (a), (c) are correct  
(D) (b), (c), (d) are correct

51. Match the following 2 - species interactions in the List - I, with their population growth indicators for the two species in the List - II.

(Indicators : + : positive growth;  
- : negative growth and 0 : No effect)

List - I	List - II
(a) Amensalism	(i) 0, 0
(b) Competition	(ii) -, 0
(c) Parasitism	(iii) +, 0
(d) Commensalism	(iv) +, -
	(v) -, -

**Codes :**

- |     |      |      |       |       |
|-----|------|------|-------|-------|
|     | (a)  | (b)  | (c)   | (d)   |
| (A) | (ii) | (v)  | (iv)  | (iii) |
| (B) | (i)  | (ii) | (v)   | (iii) |
| (C) | (i)  | (iv) | (iii) | (ii)  |
| (D) | (iv) | (i)  | (v)   | (ii)  |

52. Arrange the following in chronological order (past to recent) :

- (a) Devonian  
(b) Permian  
(c) Cretaceous  
(d) Triassic  
(e) Ordovician

**Codes :**

- (A) (d), (c), (a), (e), (b)  
(B) (b), (a), (c), (d), (e)  
(C) (b), (c), (a), (d), (e)  
(D) (e), (a), (b), (d), (c)

53. The burning of coal produces the following gas in a closed room :

- (A) Nitrogen  
(B) Hydrogen  
(C) Carbon mono-oxide  
(D) Oxygen

54. Air pollutants are mainly the :

- (a) Water vapour  
(b) Particulate matter  
(c) Gaseous emission  
(d) Automobile exhaust

**Codes :**

- (A) (a), (d) are correct  
(B) (b), (c), (d) are correct  
(C) (a), (c) are correct  
(D) (b), (a) are correct

55. Match the following items in List - I with their respective pH values in List - II :

List - I	List - II
(a) Ammonia	(i) 9.0
(b) Milk	(ii) 3.0
(c) Apple Juice	(iii) 11.5
(d) Sea Water	(iv) 4.2
(e) Tomato Juice	(v) 6.5
	(vi) 8.5

**Codes :**

- |     |       |       |      |       |      |
|-----|-------|-------|------|-------|------|
|     | (a)   | (b)   | (c)  | (d)   | (e)  |
| (A) | (i)   | (iii) | (ii) | (v)   | (vi) |
| (B) | (vi)  | (i)   | (iv) | (iii) | (v)  |
| (C) | (iii) | (v)   | (ii) | (vi)  | (iv) |
| (D) | (i)   | (iii) | (v)  | (ii)  | (vi) |



56. Find the right order for the following units of energy :

- (a) Calorie (b) BTu  
(c) Kilowatt-hour (d) Joule

Codes :

- (A) (a), (d), (c), (b)  
(B) (a), (c), (b), (d)  
(C) (d), (a), (b), (c)  
(D) (b), (a), (c), (d)

57. The following statistical test is carried out to ascertain to know whether there is any significant difference between the variances of two sets of observations :

- (A) Chi Square Test  
(B) F - Test  
(C) Regression  
(D) t - test

58. Water-borne infections are :

- (a) Typhoid  
(b) Sleeping sickness  
(c) Cholera  
(d) Yellow fever

Codes :

- (A) (a), (d) are correct  
(B) (b), (c) are correct  
(C) (c), (d) are correct  
(D) (a), (c) are correct

59. Assertion (A) :

Non-melanoma spots on skin may be an indication of skin cancer.

Reason (R) :

Arsenic contaminated water causes white spots on the skin.

Codes :

- (A) Both (A) and (R) are true and (R) is the correct explanation of (A)  
(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
(C) (A) is true but (R) is false  
(D) (A) is false but (R) is true

60. Match the following :

List - I (Insecticide type)	List - II (Example)
(a) Organophosphates	(i) Carbaryl, methomyl, aldicarb, aminocarb
(b) Carbamates	(ii) Permethrin, bifenthrin, esfenvalerate, decamethrin
(c) Chlorinated hydrocarbons	(iii) Parathion, malathion, phorate, chloripyrifos
(d) Pyrethroids	(iv) DDT, toxaphene, dieldrin, chloradane, lindane

Codes :

- |     | (a)   | (b)   | (c)  | (d)  |
|-----|-------|-------|------|------|
| (A) | (ii)  | (iii) | (iv) | (i)  |
| (B) | (iv)  | (iii) | (ii) | (i)  |
| (C) | (iii) | (iv)  | (i)  | (ii) |
| (D) | (iii) | (i)   | (iv) | (ii) |



61. Arrange the following fuels in the order of their Gross Calorific Value (GCV) :

- (a) Natural Gas
- (b) Charcoal
- (c) Petrol
- (d) Kerosene
- (e) Diesel

Codes :

- (A) (a), (b), (e), (d), (c)
- (B) (c), (d) (e), (a), (b)
- (C) (c), (e), (a), (b), (d)
- (D) (b), (a), (e), (d), (c)

62. Sewage is the good medium mostly for the growth of :

- (A) Pathogenic Bacteria
- (B) Water plants
- (C) Flowering plants
- (D) Lichens

63. Nagasaki and Chernobyl nuclear accidents took place in :

- (a) USA                      (b) Russia
- (c) Japan                    (d) Australia

Codes :

- (A) (b), (c) are correct
- (B) (b), (d) are correct
- (C) (a), (d) are correct
- (D) (c), (d) are correct

64. Match the following :

List - I

List - II

- |   |                              |
|---|------------------------------|
| (a) When there is no exchange between leaves and atmosphere due to balance of respiration and photosynthesis is | (i) Liebig Law               |
| (b) Exchange of gases between organism and environment is   | (ii) Lotka-Volterra equation |
| (c) The logistics expressing inter specific competition such as predatory-prey relationships is                 | (iii) Compensation point     |
| (d) The essential material most closely approaching the minimum need tends to be the limiting one               | (iv) External Respiration    |

Codes :

- |     |       |       |       |      |
|-----|-------|-------|-------|------|
|     | (a)   | (b)   | (c)   | (d)  |
| (A) | (ii)  | (iv)  | (iii) | (i)  |
| (B) | (iv)  | (iii) | (i)   | (ii) |
| (C) | (iii) | (iv)  | (ii)  | (i)  |
| (D) | (iv)  | (iii) | (ii)  | (i)  |

65. Turbidity is because of :

- (A) Dissolved impurities
- (B) Settleable matter
- (C) Colloidal matter
- (D) Passage of light



**66. Assertion (A) :**

When energy is transferred to one trophic level to another, the successive level receives lesser energy than the energy transferred.

**Reason (R) :**

Whenever energy is transformed there is loss of energy through release of heat.

**Codes :**

- (A) Both (A) and (R) are true, and (R) is the correct explanation of (A)
- (B) Both (A) and (R) are true, but (R) is not the correct explanation of (A)
- (C) (A) is true but (R) is false
- (D) (A) is false but (R) is true

**67. Arrange the zones of the lake in proper order (Top to bottom) :**

- (a) Profundal zone
- (b) Benthic zone
- (c) Littoral zone
- (d) Limnetic zone

**Codes :**

- (A) (c), (d), (a), (b)
- (B) (a), (c), (b), (d)
- (C) (c), (a), (d), (b)
- (D) (a), (d), (b), (c)

**68. Match the following.**

Four stages of decomposition :

**List - I**

- (a) The loss of soluble sugars and other compounds that are dissolved and carried away by water
- (b) The formation of particulate detritus by physical and biological action accompanied by the release of dissolved organic matter
- (c) Rapid release of humus and liberation of additional soluble organics by saprotrophs
- (d) Release of organically bound nutrients into an inorganic form available to plants and microbes

**List - II**

- (i) Production
- (ii) Leaching
- (iii) Fragmentation
- (iv) Mineralization

**Codes :**

- |     | (a)   | (b)   | (c)  | (d)  |
|-----|-------|-------|------|------|
| (A) | (ii)  | (iii) | (i)  | (iv) |
| (B) | (iii) | (i)   | (ii) | (iv) |
| (C) | (iv)  | (iii) | (ii) | (i)  |
| (D) | (iii) | (iv)  | (i)  | (ii) |



69. Arrange the following lakes of Warangal district in the order of largest to smallest :
- (a) Bhadrakali Lake
  - (b) Pakhal Lake
  - (c) Ramappa Lake
  - (d) Laknavaram Lake

Codes :

- (A) (c), (d), (b), (a)    (B) (d), (c), (a), (b)
- (C) (d), (b), (a), (c)    (D) (c), (b), (d), (a)

70. Match the following :

- |   |                                      |
|---|--------------------------------------|
| <p>(a) The ability of a population to increase by reproduction. It is covering the production of new individuals of any organism.</p>                           | <p>(i) Minimum Known Alive (MKA)</p> |
| <p>(b) Death of individuals in the population. It is equivalent to death rate in human demography. It is the number of individuals dying in a given period.</p> | <p>(ii) Life table</p>               |
| <p>(c) A complete picture of a death in a population is illustrated by.</p>   | <p>(iii) Mortality</p>               |
| <p>(d) Mark-recapture method used to estimate population densities over an extended period of time.</p>   | <p>(iv) Natality</p>                 |

Codes :

- |     |       |       |      |       |
|-----|-------|-------|------|-------|
|     | (a)   | (b)   | (c)  | (d)   |
| (A) | (iv)  | (ii)  | (i)  | (iii) |
| (B) | (ii)  | (iii) | (iv) | (i)   |
| (C) | (iii) | (iv)  | (i)  | (ii)  |
| (D) | (iv)  | (iii) | (ii) | (i)   |

Read the following and answer the questions given below :

As pioneer population ecologist Thomas Park well expressed, a population has characteristics or biological attributes that it shares with its component organisms, and it also has characteristics or group attributes unique to the group or species. Among the biological attributes of population is life history (the population grows, differentiates, and maintains itself as the organism does). Also, the population has a definite structure and function and can be described. By contrast, group attributes, such as birth rate, death rate, age ratio, genetic fitness, and growth form apply only to the population. Thus, an individual is born, dies, and ages, but it does not have birth rate, a death rate, or an age ratio. These latter attributes are meaningful only at the population level.

Population density is the size of the population in relation to a definite unit of space. It is generally expressed as the number of individuals or the population biomass per unit area or volume – for example, 200 trees per hectare (1 hectare = 2.471 acres) or five million diatoms per cubic meter of water. Sometimes, it is important to distinguish between crude density, the number (or biomass) per unit of total space, and ecological density, the number (or biomass) per unit of habitat space (available area or volume that can actually be colonized by the population). Often it is more important to know whether a population is changing (increasing or decreasing) than to know its size at any one moment. In such cases, indices of relative abundance are useful; these may be time-relative, as, for example, the number of birds seen per hour. Another useful index is the frequency occurrence, as, for example, the percentage of sample plots occupied by the species. In descriptive studies of vegetation, density, dominance,



and frequency are combined to provide an important value of each species.

Illustrations are available on how densities encountered in populations of mammals are related to trophic level and to the sizes of individual animals. Although the density of mammals as a class may range over nearly five orders of magnitude, the range for any given species or trophic group is much less. The lower the trophic level, the higher the density, and within a given level, the larger the individuals, the larger the biomass. As large organisms have lower rates of metabolism per unit weight than small organism, a larger biomass can be maintained on the given energy base.

71. The population grows, differentiates and maintains itself as the organism does is :

- (A) Life cycle            (B) Life forms
- (C) Life history        (D) Life zones

72. The size of the population in relation to a definite unit of space is called :

- (A) Ecological density
- (B) Population density
- (C) Ecological niche
- (D) Ecotone Dynamics

73. Available area or volume that can actually be colonized by the population is :

- (A) Habitat space
- (B) Habitat diversity
- (C) Habitat niche
- (D) Habitat selection

74. Important value of each species is :

- (A) Density + Dominance - Frequency
- (B) Density - Dominance/Frequency
- (C) Density + Dominance/Frequency
- (D) Density + Dominance + Frequency

75. Large organisms have \_\_\_\_\_ of metabolism per unit weight than small organisms.

- (A) Higher rates
- (B) Lower rates
- (C) Moderate rates
- (D) Excessive rates

- o o o -



Space For Rough Work

SEAL