gradeup

Sahi Prep Hai Toh Life Set Hai

Basics of Energy and Environment

40+ Imp Questions

ABOUT ME : VIKAS BHADORIYA

- 5+ Years' Teaching Experience
- M.Tech (Thermal Engineering), Thapar University
- Mentored 10000+ Aspirants for GATE, ESE, SSC JE etc.
- Area of Expertise: Fluid Mechanics, Thermal & Applied, Heat Transfer

gradeup SUPER

Hurry up! Enrolment Started for Limited Seats Enrol Now

VISION 2022 (English)

Course for
ESE, GATE & PSUs

CE | ME | EE | EC | CS

850+ Hrs. of Live Classes
8000+ Practice Questions
100+ Mock Tests
120+ Chapter-wise Study Note

VISION 2022 (Hindi)

Course for
ESE, GATE & PSUs

CE | ME | EE | EC | CS

850+ Hrs. of Live Classes
8000+ Practice Questions
120+ Mock Tests
100+ Chapter-wise Study Note

VISION 2023 (Hindi/Eng.)

Course for
ESE & GATE 2023

CE | ME | EE | EC

950+ Hrs. of Live Classes
8000+ Practice Questions
120+ Mock Tests
120+ Chapter-wise Study Note

To get unlimited access to your preferred courses subscribe to Gradeup Super
For More Information: 9650052904

40+ Imp Questions

Ecosystem

Biotic (Living)

Abiotic (Non-Living)

Q.1 An Ecosystem consist of

A. Only living organisms.

B. Only non-living material.

C. Both living and non living components.

D. None of the above.

40+ Imp Questions

Q. Match the following

List-I	List-II
A. Autotrophic Components	i. Purely Herbivorous animals
B. Heterotrophic Components	ii. Eat both plant and animals
C. Primary Consumers	iii. Produce their own food by interacting with environment
D. Secondary Consumers	iv. Consume food produced by producers.

A. A-ii, B-i, C-iii, D-iv:

B A-I B-ii, C-iv, D-iii

C. A-iii, B-iv, C-i, D-ii.

D. A-iv, B-iii, C-i, D-ii

Coral reefs (Max. Biodiversity) in ocean

Q3 Which of the following is not true about coral reefs? (Amazon of sea)

A. They are found in tropical and sub-tropical waters.

B. They support limited marine species.

C. They remain stationery.

D. They help in protecting shore lines.

Around 4000 species of fish are supported by coral reefs

equivalent to tons of CO_2

Q. Global warming potential of a Green House Gas is a measure of ability to absorb energy from radiations with respect to same mass of

A. CO_2

B. CH_4

C. N_2O

D. None of the above

Limit the Green house gases

Quota Limit

Kyoto Limit

Q.5 Match the following

List-I	List-II
i. Kyoto Protocol	1. Elimination of Ozone depleting substances.
ii. Montreal Protocol	2. Control of trans-boundary movement of hazardous waste.
iii. Basel Convention	3. Stabilisation of Green House Gases
iv. CITES Convention	4. international trade in endangered species

A. i-1, ii-2, iii-3, iv-4

B. i-3, ii-1, iii-2, iv-4

C. i-2, ii-3, iii-1, iv-4

D. i-3, ii-2, iii-1, iv-4

40+ Imp Questions

Mitigation Targets provided by Paris Agreement

Q.6 Read the following statements and select the correct option.

i. The main aim of Paris agreement (2016) is to keep the global temperature rise to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1 .50°C.

ii. Mitigation targets for each country are determined by independent agency IPCC. X

A. Only i is correct.

B. Only ii is correct.

C. Both i and ii are correct.

D. Both i and ii are incorrect.

COD (organic & inorganic)

BOD (organic) directly indicates how much water is polluted (amount of microbial pollution)

Q.7 Read the following statements and select the correct option,

i. An increase in Biochemical Oxygen demand (BOD) indicates improvement in water quality.

ii. BOD is the amount of Oxygen required by microorganisms to biologically degrade the wastes.

A. Both i and ii are correct.

B. Only i is correct.

C. Only ii is correct.

D. Both i and ii are incorrect.

40+ Imp Questions

Q. Consider the following statements regarding ecological community:

1. A community is the set of all populations that inhibit a certain area.
2. Ecosystems include both the biological and physical components affecting the community

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

40+ Imp Questions

Q. The deepest zone of a lake is known as

A. Littoral zone

B. Euphotic zone

C. Profundal zone

D. Limnetic zone

Aquatic Biome

Photic Biome (which receive sunlight)

Aphotic biome (which do not receive sunlight)

Food chain is single pathway
Food web is interconnection of many food chain

Q.16 Consider the following statements regarding food web:

1 A food web is a set of interconnected food chains by which energy and nutrients circulate within an ecosystem

2 Food web is generally more realistic representation of consumption relationship in an ecosystem.

3. It is a single pathway through which energy travels in the ecosystem Which of the above statements is/are correct?

A. 1 only

B. 1 and 2 only

C. 2 and 3 only

D. 1,2 and 3

40+ Imp Questions

Tiger Reserves
National Parks
Elephant Reserves
Community Reserves
Conservation Reserves

Q. Which of the following categories of protected areas are covered under the Wildlife (Protection) Act, 1972?

1. Tiger Reserves
2. Biosphere Reserves → They are not under Wildlife Protection Act
3. National Parks
4. Community Reserves

Select the correct answer using the codes given below:

A. 1,2 and 3

B. 2,3 and 4

C. 1,3 and 4

D. 1,2,3 and 4

40+ Imp Questions

Q.12 With reference to provisions in Kyoto Protocol, consider the following statements:

1. Joint Implementation (JI) is an approach for countries to earn carbon credits by investing in emission redUction projects in developed countries-

2. Clean Development Mechanism (CDM) provides an opportunity to industrialized countries to earn carbon credit by investing in emission reduction projects in developing countries.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

40+ Imp Questions

Q. 13 The biological (aerobic bacteria) decomposition of organic substances under controlled conditions is known as

A. Pyrolysis → High Temperature heating of waste in absence of air

B. Incineration → Direct combustion

C. Composting

D. Sanitary landfill

Waste Treatment methods

40+ Imp Questions

Q. 14 Abiotic component of environment does not include

Air, Soil, Water, Temperature Humidity, Rainfall

A. Air

B. Soil

C. Plants → Biotic

D. Water

LEED

International or Global certification for ratings of green buildings

National

Q. Consider the following statements regarding Green Rating for integrated Habitat Assessment (GRIHA): energy conservation buildings

1. It has been developed to help design and evaluate the new buildings,
2. Under GRIHA, a building is assessed based on its predicted performance over its entire life cycle.

Which of the above statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

40+ Imp Questions

16

Q. Which of the following is NOT a criteria to designate a species 'endangered' by International Union for Conservation of Nature (IUCN)?

A. 70% reduction in population size over the last 10 years.

B. Population size estimated to fewer than 2500 mature individuals.

C. Facing very high risk of extinction in the wild

D. Probability of extinction in wild is at least 10% within 100 years. → This is criteria for vunerable species

40+ Imp Questions

17

Q. Which one of the following international conventions is related to persistent organic pollutants?

A. Basel Convention → control of trans boundary movement of hazardous waste

B. Rotterdam Convention → control of microbial toxic pollutants pollution in water

C. Stockholm Convention

D. Minamata Convention → mercury

40+ Imp Questions

18

Q. **Statement (I):** Grazing food chain starts from the producers and proceeds to herbivores, and then to carnivores.

producers (green plants)

Statement (II): Energy for grazing food chain comes from remains of detritus. [redacted]

(decomposers)

A. Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I).

B. Both Statement (I) and Statement (II) are individually true but Statement (II) is NOT the correct explanation of Statement (I).

C. Statement (I) is true but Statement (II) is false

D. Statement (I) is false but Statement (II) is true

19

Q. **Statement (I):** Alpha-diversity includes the diversity of organisms sharing the same habitat or community.

Beta Diversity

Statement (II): Alpha-diversity refers to replacement of species while moving from one habitat to another within a given geographical area.

A. Both Statement (I) and Statement (II) are individually true and Statement (II) is the correct explanation of Statement (I).

B. Both Statement (I) and Statement (II) are individually true but Statement (II) is NOT the correct explanation of Statement (I).

C. Statement (I) is true but Statement (II) is false

D. Statement (I) is false but Statement (II) is true

20

Q. Which of the following harmful pollutants are emitted by coal power plants into the atmosphere?

1. Sulphur dioxide (SO_2)
2. Nitrogen oxides (NO_x)
3. Particulate matter (PM) → suspended particles in air (aerosols, dust particle
4. Various trace metals including mercury (Hg)

Select the correct answer using the codes given below:

A. 1 and 2 only

B. 2,3 and 4 only

C. 1,2 and 3 only

D. All of the above

40+ Imp Questions

21

Q. In which of the following areas local people not allowed to collect and use the biomass?

1. Biosphere Reserves
2. National Parks ← Max. protected area
3. Wetlands declared under Ramsar Convention

Select the correct answer using the codes given below:

A. 1 only

B. 1 and 2 only

C. 2 only

D. 1 and 3 only

40+ Imp Questions

22

Q. The 'niche' of a species is meant for

A. Specific place when an organism lives

B. Habitat and specific functions of a species

C. Functions of species and its competitive power

D. None of the above

Niche is defined as the habitat of species & functional relationship of a species

40+ Imp Questions

23

Q. The primary succession refers to the development of communities on a:

A. Freshly cleared crop field.

(sand dunes) (rock area)

B. Newly-exposed habitat with no record of earlier vegetation.

C. Newly-exposed habitat with record of earlier vegetation

D. Forest clearing after devastating fire.

24

Q. Consider the following statements:

1. Kyoto Protocol came into force in the year 2005.
2. Kyoto Protocol deals primarily with the depletion of the Ozone layer. control of greenhouse emission
3. Methane as a greenhouse gas is more harmful than carbon dioxide.

Which of the above statements is/are correct?

A. 2 only

B. 1 only

C. 1 and 3 only

D. 1,2 and 3 only

40+ Imp Questions

25

Q. Which of the following factors determine Biodiversity region as a hotspot?

1. Species Richness
3. Threat of extinction
2. Endemism → state of species native to a location

(some species are only found in a particular location)

Select the correct answer using the codes given below:

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1,2 and 3

$CO \rightarrow CO_2$ $NO_2 + N_2 \& O_2$

$HC \rightarrow CO_2 \& H_2O$

Catalytic Converters

to reduce harmful emission into harmless products

26

Q. Which one of the following statement(s) is/are correct about emission standards?

1. Under BS-VI standards automobile industry have to switch towards Selective Catalytic Reduction Technology.

parts per million

2. BS-IV fuels contain 50 ppm sulphur and after switching towards BS-VI grade fuel will have 10 ppm sulphur which will bring down Nitrogen Oxide emission.

Select the correct answer using the codes given below:

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

27

Q. Which among the following is the most abundant Greenhouse gas (GHG) in the earth's atmosphere?

A. Ozone

B. Water Vapour (Moisture)

C. Sulphur dioxide

D. Carbon dioxide

40+ Imp Questions

28

Q. Which among the following criteria is/are necessary to meet qualification for 'biodiversity hotspot?

1. The region must contain at least 0.5 percent or 1500 species of vascular plants as endemic species.
2. The region has to have lost at least 50 percent of its primary vegetation. Select the correct answer using the codes given below:

70%

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

40+ Imp Questions

29

Q. Which among the following types of pyramid is always upright in Food chain across tropic levels?

A. Pyramid of Energy (Always upright or straight)

B. Pyramid of Numbers (Straight or Inverted)

C. Pyramid at Accumulated chemicals ✗

D. Pyramid of Biomass (Straight or Inverted)

40+ Imp Questions

30

Q. Which among the following Convention seeks to protect environment from Persistent Organic Pollutants (POPs)?

A. Stockholm Convention

B. Bonn Convention

Germany

convention on migratory species of wild animals

C. Rotterdam Convention

D. Basel Convention

3)

Ozone & H_2O vapour are uncontrolled greenhouse gases but they are not recognised under Kyoto Protocol

Q. Which among the following Greenhouse gases are recognized by the Kyoto Protocol to complete their targets?

1. Carbon Dioxide (CO_2)
2. Methane (CH_4)
3. Ozone (O_3)
4. Sulphur Hexafluoride (SF_6)

Select the correct answer using the codes given below:

A. 1 and 2 only

B. 1,2 and 3 only

C. 3 and 4 only

D. 1,2 and 4 only

40+ Imp Questions

32

Q. Which among the following terms is related to 'Agenda 21' of Rio Summit, 1992?

(Earth summit)

A. Sustainable development

B. Conservation and sustainable use of plant genetic resources

C. Mitigation norms of Greenhouse gases emission

D. Technology transfer mechanism

40+ Imp Questions

33

Q. Consider the following statements:

(Intra)

1. Alpha diversity refers to the diversity within a particular ecosystem.

(Inter)species

2. Beta diversity examines change in species diversity between ecosystems within a region.
3. Gamma diversity is a measure of the overall diversity for the different ecosystems within a region.

Which of the above statements are correct?

A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1,2 and 3

34

Q. Which among the following is/are considered as unconventional source of natural gas?

1. Shale Gas → natural gas (methane)

Maximum use in USA

3. Methane Hydrates

2. Coal bed methane → natural gas (coal mines) chissins well

Select the correct answer using the codes given below:

A. 1 only

B. 1 and 3 only

C. 2 and 3 only

D. [redacted] 1, 2 & 3

40+ Imp Questions

35

Q. Which among the following statements correctly explain Carbon Footprint?

A. carbon footprint is a measure of the environmental impact of an organization, event. person or product.

B. It is a unit under the Kyoto Protocol representing a reduction of Greenhouse gases under the Joint Implementation mechanism.

C. It is an administrative approach used to control pollution for achieving reductions in the emissions pollution.

D. All of the above

$Cl + O_3 \rightarrow ClO + O_2$ 36

Volcanic eruptions also release Chlorine in atmosphere. & other harmful gases

Q. Consider the following statements regarding depletion of the ozone layer:

1. Excessive release of chlorine and bromine in the environment from man-made compounds, such as chlorofluorocarbons.
2. Occurrence of certain natural phenomena such as sunspots, and stratospheric winds.
3. Degradation of materials by ultra-violet radiation.
4. Major volcanic eruptions.

Which of the above can be categorized as causing ozone depletion ?

A. 1,2 and 3 only

B. 1,3 and 4 only

C. 1,2 and 4 only

D. 2,3 and 4m only

40+ Imp Questions

37

Q. The Rotterdam Convention deals with

A. Reducing nuclear weapon stock piles

B. Limiting the use of toxic chemicals

C. Protecting the oceans

D. Banning of human clone experiment

3B

Q. Consider the following tertiary treatment methods for treatment of waste water:

i. Ion-exchange method

ii. Reverse osmosis (RO)

iii. Chemical oxidation method

iii. Activated sludge process (Secondary treatment)

Which of the above methods are correct?

A. i, ii and iv

B. i, iii and iv

C. ii, iii and iv

D. i, ii and iii

40+ Imp Questions

39

Q. An association of two organisms of different species for mutual benefit, and where the individuals may not be able to survive separately. is called

A. Commensalism → relationship between organism in which only one of them gets benefits & other neither benefit nor harm

B. Parasitic → Parasites

C. Non-symbiotic

D. Symbiotic or Mutualism

Corals / lichens

Pollination

40

Solar UV rays + O_2 → O + O

O + O_2 → O_3

Q. Ozone layer present in the atmosphere protects life on earth by not permitting harmful radiations present in the sunlight to penetrate through it. Ozone layer is formed by the reaction of

A. Chlorofluorocarbons (CFCs) on oxygen (O_2)

B. Chlorine (Cl) on oxygen (O_2)

C. Solar Ultraviolet rays on oxygen (O_2)

D. Chlorine nitrate ($ClNO_3$) on oxygen (O_2)

41

Q. Environmental Impact Assessment (EIA) is aimed to help

A. Estimate future needs of the society

B. Smooth implementation of a project

C. Cope with rapid increase in population

D. Resource conservation

EIA is done to assess the performance of a new project, to study the impact of the new project on the environments thus it promotes energy conservation & responsible for sustainable development

Our Star Faculty

Dheeraj Sardana
10+ Years of Experience
Mentored 15000+ Students
Produced AIR 4 & 30+ Rankers under AIR 100 in GATE

Chandra Shekhar
13+ Years of Experience
B.Tech, IIT Delhi

Onkar Otari
10+ Years of Experience
M.Tech, NIT Trichy

Rushi Joshi
16+ Years of Experience
Mentored 25000+ Students

Sonu Chauhan
9+ Years of Experience
Mentored 10000+ Students

Balaji Tanguturi
8+ Years of Experience M.E, IIT Madras (AIR-98)

Vishva Jeet Verma
7+ Years of Experience
Alumni IITB 2014 batch

Sooraj Gopi
M.Tech, NIT Agartala
5+ Years of Experience
Mentored 15,000+ Students

Vikas Bhadoria
M.Tech, Thapar University
5+ Years of Experience
Produced 50+ Selection in GATE & JE Exams

Akash Gupta
M.Tech, NIT Delhi
4+ Years of Experience

gradeup

10+ Gradians Under AIR 10

GATE 2021 RESULTS

gradeup

AIR 2
EC
Poojasree M

AIR 3
ME
Munish

AIR 4
IN
Divakar

AIR 5
EC
Vaishnav KV

AIR 6
EC
Parag Saroha

AIR 7
CE
Amit

AIR 7
ME
V Pvatsal

AIR 8
EE
Ujjawal Kumar

AIR 9
CS
Niranjan Dhoot

AIR 9
EC
Dosapti Vamsi

Sahi Prep Hai Toh Life Set Hai

gradeup SUPER

Structured Live Courses

- India's Best ESE, GATE & PSU Faculty
- Complete Doubt Resolution
- Full Syllabus Coverage for your exam

Green Card

- Online Mock Tests
- Designed by Toppers
- Based on Latest Exam Pattern

o get unlimited access to your preferred courses **Subscribe to Gradeup Super** **For More Information : 9650052904**

gradeup

1:30 PM

4/07/2021: General Principles of Design Drawing → Balaji sir

5/07/2021: → Ethics & Values → Ashutosh sir

6/07/2021: Material Science & Engg → Dheeraj sir

gradeup SUPER

Unlimited access to all Structured Live Courses & Mock Tests

Download Gradeup App

GET IT ON Google Play

gradeup