RM

Based on AIATS-07

Corporate Office: Aakash Tower, 8, Pusa Road, New Delhi-110005, Ph.011-47623456

CONCEPT STRENGTHENING SHEET

CSS-07

BOTANY

AIATS-07-RM-Q.112

Topic: Ecosystem: Ecosystem - Function

Synthesis of organic matter by using solar energy is the process that

(1) Follows first law of thermodynamics

(2) Shows the conversion of heat energy into chemical energy

(3) Traps the energy in the form of photons in the plants

(4) Follows second law of thermodynamics

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions:

1. Synthesis of organic matter in plants by using solar energy is a process in which
   (1) Heat energy is converted into chemical energy
   (2) Light energy is converted into chemical energy
   (3) Chemical energy is converted into heat energy
   (4) There is multidirectional flow of energy
2. According to second law of thermodynamics
   (1) Transfer of energy is always accompanied by dissipation of energy from concentrated to dispersed form
   (2) One form of energy cannot be converted into other forms
   (3) Only light energy can be converted into other forms of energy
   (4) All the materials that have mass have concentrated form of energy
3. Which of the following is/are **true** regarding the first law of thermodynamics?
   (a) Energy cannot be transferred from one system to another.
   (b) Energy is neither created nor destroyed.
   (c) Energy can be transformed from one state to another.
   (1) (a) and (b) (2) (a) and (c)
   (3) (b) only (4) (b) and (c)
4. In which step of photosynthesis, energy in the form of photon is trapped?
   (1) Carboxylation of RuBP
   (2) Regeneration of CO_2 acceptor molecule
   (3) Light reaction of photosynthesis
   (4) Reduction of CO_2 into glucose

AIATS-07-RM-Q.107

Topic: Ecosystem: Types of Ecosystem

Anthropogenic terrestrial ecosystem is

(1) Garden

(2) Aquarium

(3) Estuary

(4) Desert

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions:

1. Which one of the following is **not** an example of terrestrial ecosystem?
   (1) Garden (2) Wet land
   (3) Forest (4) Grassland

2. Select the **incorrect** one w.r.t. estuaries.
   (1) It is an aquatic ecosystem
   (2) It is fresh water ecosystem
   (3) It is natural ecosystem
   (4) It is not an agroecosystem
3. Anthropogenic ecosystem is the ecosystem which is
   (1) Always terrestrial
   (2) Occupied by plants only
   (3) Occupied by human beings only
   (4) Created and maintained by human beings
4. Which of the following is anthropogenic aquatic ecosystem?
   (1) Crop field (2) River
   (3) Aquarium (4) Wet land

AIATS-07-RM-Q.111

Topic: Ecosystem: Ecosystem Functions

What percent of energy of the incident solar radiation sustains the entire living world?

(1) 2-10%

(2) 1-5%

(3) 0.2-1%

(4) About 50%

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions:

1. Plants capture 1-5% of incident solar radiations to synthesize organic matter but what percent of photosynthetically active radiations are captured by plants to synthesize organic matter?
   (1) 50% (2) 70%
   (3) 2-10% (4) 99%
2. What percent of total incident solar radiation is absorbed by gases or water vapours or scattered by dust particles?
   (1) < 40% (2) > 50%
   (3) > 90% (4) < 1%
3. What percent of respiratory loss occur from the captured PAR for photosynthesis in plants?
   (1) 45-49% (2) 4-8%
   (3) 4% (4) 0.2-1%

AIATS-07-RM-Q.113

Topic: Ecosystem: Ecological Pyramids

The pyramid of number in an ecosystem can be

A. Upright

B. Inverted

C. Spindle shaped

The **correct** one(s) is/are

(1) Only A

(2) Only B and C

(3) Only A and B

(4) All A, B and C

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions

1. Select the type of ecosystem with inverted and upright pyramid of numbers respectively.
   (1) Grassland ecosystem and Tree ecosystem
   (2) Forest ecosystem and Pond ecosystem
   (3) Tree ecosystem and Grassland ecosystem
   (4) Pond ecosystem and Ocean ecosystem
2. In upright, pyramid of number
   (1) The number of carnivores are maximum
   (2) The number of producers are maximum
   (3) 90% of food present in the one trophic level become part of next trophic level
   (4) With each successive trophic level, number of individual are increasing
3. Which among the following ecosystem will exhibit spindle shaped pyramid of number?
   (1) Grass → Cattle → Lion
   (2) Tree → Herbivorous bird → Parasite
   (3) Phytoplankton → Zooplankton → Small fishes
   (4) Tree → Herbivorous birds → Hawk

AIATS 07 – RM – Q.104

Topic: Organisms and Populations: Population Attributes

The bell-shaped population age pyramid

(1) Represents young or growing population

(2) Has small number of pre-reproductive individuals than post-reproductive individuals

(3) Shows the population growth rate almost zero

(4) Has fewer individuals in pre-reproductive group and thus showing declined growth

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions:

1. Which of the following type of age pyramids reflects a stable population growth?
   (1) Triangular (2) Urn shaped
   (3) Bell shaped (4) Rectangular
2. Which of the following is a feature of population with bell shaped pyramid?
   (1) Is growing population
   (2) Negative growth rate
   (3) Growth rate almost zero
   (4) Initially negative then positive growth rate
3. Which of the following is represented by bell shaped age pyramid?
   (1) Expanding population
   (2) Stable population
   (3) Declining population
   (4) Young and growing population
4. Read the given statements and select the **correct** option w.r.t. stable population.
   (A) Has small number of pre-reproductive individuals than post reproductive individuals.
   (B) Represents young population.
   (1) Only statement A is correct
   (2) Only statement B is correct
   (3) Both statements are correct
   (4) Both statements are incorrect

AIATS 07 – RM – Q.No. 140

Topic: Ecosystem: Ecosystem Function

When 10 kcal energy has fallen on the green parts of plant of a food chain shown below, what amount of this energy would be converted into biomass by the animal which is at T_3?

Plant $\rightarrow T_2 \rightarrow T_3 \rightarrow T_4$

(1) 0.9 cal (2) 9 cal
(3) 0.1 cal (4) 1 cal

To access the video solution of the above question, Scan / Click the QR Code.

Practice Questions:

1. What will be the amount of energy at top carnivore level, if the energy at primary producer level is 10,000 J in the given food chain?
   PP → PC → SC → TC
   (10,000 J)
   (1) 10 J (2) 100 J
   (3) 1000 J (4) 10,000 J
2. If 10 Kcal energy has fallen on the green parts of a plant, what amount of this energy is fixed as GPP?
   (1) 10 cal (2) 100 cal
   (3) 1000 cal (4) 1 cal
3. If 1000 cal energy is present in plant, then what amount of this energy would be available at T_3 level?
   Plant → T_2 → T_3 → T_4
   (1000 cal)
   (1) 100 cal
   (2) 10 cal
   (3) 1000 cal
   (4) 1 cal

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CONCEPT STRENGTHENING SHEET

CSS-07(Botany)

Answer Key

Q AIATS-07-RM-Q.112

Topic: Ecosystem: Ecosystem - Function

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

AIATS-07-RM-Q.107

Topic: Ecosystem: Types of Ecosystem

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

AIATS-07-RM-Q.111

Topic: Ecosystem: Ecosystem Functions

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

AIATS-07-RM-Q.113

Topic: Ecosystem: Ecological Pyramids

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

AIATS 07 – RM – Q.104

Topic: Organisms and Populations: Population Attributes

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

AIATS 07 – RM – Q.140

Topic: Ecosystem: Ecosystem Function

1. (1)
2. (2)
3. (2)

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