

# ENVIRONMENTAL STUDIES & LIFE SCIENCES

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## Revision class

### Ecosystem Concepts Bio-innovation

Department of Biotechnology

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- The term Ecology was first given by which of the scientist ?
  - a. Medha Patkar
  - b. Amartya Sen
  - c. Ullas Karanth
  - d. Hackle**
- The term Ecology is derived from Greek word -
  - **True**
  - False

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- Ecology is the study of what type of interaction mentioned in the following list.
  - a. Organism and Environment**
  - b. Interaction among celestial objects
  - c. Biodiversity studies
  - d. Remote sensing
- Autecology refers to which type of study domain listed below,
  - a. Organism with its population**
  - b. Interaction with different trophic levels
  - c. Climate change
  - d. Global warming

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- Select the marine ecosystem from the environmental components listed below?
  - a. River
  - b. Stream
  - c. Pond
  - d. Ocean**
- Ecosystem consists of which of the following constituents?
  - a. Living community with nonliving community**
  - b. Only Nonliving community
  - c. Only Nonliving community
  - d. Nutrient recycling

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- Autotrophs in ecosystem have which of the following characters?
  - a. **Synthesizing their own food**
  - b. b. Depends on other food
  - c. c. Requires zero cultivation source
  - d. d. Low input agro-farm
- The mechanism of food chain work on which of the following principle?
  - a. **Whom eat whom**
  - b. Preparation of new food products
  - c. Generation of raw materials
  - d. Biofortification of foods

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- Select the organism constituting food web of soil ecosystem?
  - a. Plants**
  - b. Fish
  - c. Prawn
  - d. Polar bear
  
- Select the organism not belongs to grass land food web from the list?
  - a. elephant
  - b. Zebra
  - c. Grass
  - d. Orchids**

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- Identify the gas composition present in higher percentage in atmospheric gas?
  - a. Oxygen
  - b. Carbon dioxide
  - c. Nitrous oxide
  - d. Nitrogen**
- Identify the component which is not the part of carbon cycle?
  - a. Ocean
  - b. Biosphere
  - c. Lithosphere
  - d. Infra red radiations**

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- Identify the main source of oxygen in atmosphere from the list mentioned bellow ?
  - a. Algae
  - b. Bacteria
  - c. Fungi
  - d. Green Plants**
- Photosynthetic phenomenon releases which of the following essential gas?
  - a. Oxygen**
  - b. Sulphur dioxide
  - c. Nitrous oxide
  - d. Carbon monoxide



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- The atmospheric nitrogen is transformed to soil biomass from which of the following agent?
  - a. Nitrogen fixing Bacteria**
  - b. Mineralizing bacteria
  - c. Thermophiles
  - d. Cryophilic Bacteria
- Identify the highest energy carriers in the following list of biosystems?
  - a. Producers**
  - b. Primary consumers
  - c. Secondary Consumers
  - d. Tertiary          Consumers

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- In ecological pyramid the producer is present at which position?
  - a. Base**
  - b. Apex
  - c. Middle
  - d. Corner
- Direct value in ecosystem has both consumptive and productive value.
  - **True**
  - False

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- Identify from the bellow mentioned list component not listed under direct value of forest products?
  - a. Building material
  - b. Medicinal products
  - c. Gums resins
  - d. Fruits**
- Identify the example for natural reserve from the following?
  - a. Sun**
  - b. Automobiles
  - c. Electronic device
  - d. Satellite

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- Which of the following belongs to natural resource category?
  - a. Hydropower**
  - b. Coal
  - c. Petrol
  - d. Natural gas
- Comparatively which of the fuel is consumed at higher level in India?
  - a. Solar
  - b. Geothermal
  - c. Coal**
  - d. Wind

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- Burning of Coal causes smog.
  - **True**
  - False
- Identify the environmental hazard caused by petroleum oil spills from the bellow list?
  - a. Hazardous to Land Animals
  - b. Hazardous to aquatic animals**
  - c. Hazard to air borne pathogens
  - d. Hazard to soil bacteria

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- Identify from the following list not a fossil fuels source in developing country?
  - a. **Wood**
  - b. Charcoal
  - c. Peat
  - d. Solar
- Identify from the following list not a fossil fuel source in developed country?
  - a. Coal
  - b. Natural gas
  - c. Oil
  - d. **Hydrothermal energy**

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- Bioethanol is comes under biofuel category.
  - **True**
  - False
- Nuclear Fission involves division of atoms of large molecules.
  - **True**
  - False
- Which of the following metal is used in nuclear power reactor?
  - a. Uranium**
  - b. Carbon
  - c. Copper
  - d. Tungston

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- Select the biogeographic region from the bellow mentioned components ?
  - a. Western ghats**
  - b. Amusement parks
  - c. Agriculture land
  - d. Medicinal garden
- Example for the engineered ecosystem.
  - **Crop land**



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- Which of the following is major habitat conditions for living organisms of planet earth?
  - a. Terrestrial**
  - b. Celestial
  - c. Satellite
  - d. Stars
- Stream is very good example for the lotic system.
  - a. True**
  - b. False

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- Nature recycles everything, use waste as a resource.
  - **True**
  - False
- The special denticles present in the shark skin helps in enhancing the swimming speed by which of the following mechanism.
  - a. Enhanced water movement
  - b. High feeding
  - c. Enhanced muscle strength
  - d. Decreased drag force**

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- Biomimetics works on the basis of which of the bellow mentioned systems?
  - a. Biological**
  - b. Chemical
  - c. Physical
  - d. Ultrosonic
- Select from the list of countries mentioned bellow recognise the potential of biomimetics?
  - a. Japan**
  - b. Africa
  - c. China
  - d. Singapore

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- George De Mestral was inventor of which of the following object.
  - a. **Velcro**
  - b. Teflan
  - c. Biofilm
  - d. Bioplastic
- The Shankansen train the modern technology marvel was designed from biomemitics of?
  - a. **Kingfisher**
  - b. Duck
  - c. Sparrow
  - d. Parrot

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- The Gecko foot made of which of the following biostructure?
  - a. **Lamellae**
  - b. Spines
  - c. Nails
  - d. Bones
  
- Gecko foot is inspiration to fabricate;
  - a. **Adhesive tape**
  - b. Ribbon
  - c. Thread
  - d. Poly-fibre

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- Coloured electronic Screens are prepared from understanding the design of following bioresource.
  - a. Peacock wing
  - b. Eagle
  - c. Grasshopper
  - d. **Butterfly**
- Lifesaving robot is prepared from which of the following biological architecture
  - a. Honeybee
  - b. Silkworm
  - c. **Spider**
  - d. Dragonfly

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- The summation of signals is formed in which part of the following biological neuron.
  - a. **Soma**
  - b. Synapse
  - c. Axon
  - d. CNS
- Which of the following principle induce activation of human neuron.
  - a. Optimal
  - b. **Threshold**
  - c. Neutral
  - d. Passive

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- The summation values of weighted inputs in neuron ranges from ,
  - a. **0 - 1**
  - b. 1 - 2
  - c. 2 - 3
  - d. 3 - 4
- The pattern of nerve signal transmission in multilayer feed forward is.
  - a. **Single input to Single hidden layer**
  - b. Single input to two hidden layer
  - c. Single input to three hidden layer
  - d. Single input to multiple hidden layer



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- Strength of connection between neuron is stored as which of the following measurable units
  - a. EMF
  - b. Ohms
  - c. Valency
  - d. **Weight value**
- ANN is used in which of the biomedical applications
  - a. **MRI Scan**
  - b. X-ray
  - c. DNA analysis
  - d. Thermal scan

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- A simulation model developed from ANN principle help to prevent which of the following disease
  - a. Neuronal
  - b. Cardiac**
  - c. Liver
  - d. Diabetes
- Biocatalysts of biosensor perform which of the following functions
  - a. Converts substrate to product**
  - b. Produce electrical signals
  - c. Display the signals increases the signals

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- Identify the bio-element used in the biosensor.
  - a. **Antibodies**
  - b. Silicon
  - c. Graphite
  - d. Silver
  
- Transducer in biosensor used to convert one form of signals to other form.
  - **True**
  - False

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- Rapid analysis of diagnostic sample is possible in biosensor.
  - **True**
  - False
- Detection of pesticide and water contaminants is not possible using biosensor.
  - **True**
  - False
- Identify the specific feature of biosensor from bellow mentioned list.
  - a. Simplicity**
  - b. Complex
  - c. Irregular
  - d. Non-feasible

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- Biosensor is used to detect bio-elements.
  - **True**
  - False
- Glucometer is an example for a biosensor.
  - **True**
  - False
- Information technology application in health care is known as?
  - a. Remote Sensing
  - b. Satellite vision
  - c. **Telemedicine**
  - d. Radiology

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- Telemonitoring is used to treat people who may have problem in attending clinics.
  - **True**
  - False
- Telemonitoring help the physicians to treat the patients with following merits.
  - a. To detect early warning sign on ill health**
  - b. To Drug development.
  - c. Clinical trials.
  - d. Herbal drug manufacturing.

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- Identify the disease which fall in line with patient having high risk of hepatization
  - a. **Patient with cardiac operation and recovery history**
  - b. Inhouse admitted patients
  - c. Genetic counselling
  - d. Physiological counselling
  
- From the following list identify the convenient device to be used to telemonitoring
  - a. **Mobile**
  - b. Ambulance
  - c. ECG
  - d. Television

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- Telemedicine programme in Karnataka started in the year.
  - a. **2001**
  - b. 2004
  - c. 2006
  - d. 2008
  
- Telemedicine network project in Karnataka is monitored by?
  - a. **ISRO**
  - b. DRDO
  - c. CFTRI
  - d. NASA



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- Telemedicine organisations require cloud-based application to monitor patient health.
  - **True**
  - False
- The Telemedicine device Vittel Care™ is used to monitor which of the following disease?
  - a. Cardiac**
  - b. Nervous disorders
  - c. Diabetes
  - d. Malnutrition

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- Which satellite facility is extended to provide telemedicine health care to rural areas in Karnataka?
  - a. **INSAAT**
  - b. Microsatellite
  - c. Aryabhata
  - d. Rohini
  
- Identify the advantages of telemedicine from the following.
  - a. **Decreased hospitalisation**
  - b. Expensive treatment
  - c. Non reliable
  - d. No client satisfaction

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- Bio-entrepreneurship refers to,
  - a. **Innovation from Academia to Industry**
  - b. Academia to Industry
  - c. Infrastructure development
  - d. Societal risk
- Bioentrepreneur interact with plants, animals or microbial systems to produce high value objects
  - **True**
  - False

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- Which of the following is product of Bio-entrepreneurship
  - a. Paracetamol
  - b. Aspirin
  - c. **Human Insulin**
  - d. Tetracycline
- Which of the following agricultural crop developed from Bioentrepreneur
  - a. **Herbicide resistant**
  - b. Fast growing
  - c. Exotic plant
  - d. Decreased photosynthesis

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- By comparing statistics which of the following country ranked number one in bioproduct manufacturing from Bio-entrepreneurship
  - a. Japan
  - b. USA**
  - c. India
  - d. Germany
- Biotechnology entrepreneurs often rely upon 4P's namely Products, Process, Place, Partner
  - **True**
  - False
- Organic agriculture methods, organic farms are thrust area in Bio-entrepreneurship
  - **True**
  - False

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- Select the successful Bioentrepreneur from the following list
  - a. **Kiran Mazumdar Shaw**
  - b. Azim Premji
  - c. Ratan Tata
  - d. Bill Gates
  
- Select the component used to make objects in 3D printing from the following
  - a. Gas
  - b. Light
  - c. Ozone
  - d. **Living cells**

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- Select the computational tool used in the 3D printing from the following.
  - a. COBOL
  - b. BASIC
  - c. ANIMATION
  - d. **CAD**
- Tissue and organ fabrication is possible using 3D printing.
  - **True**
  - False
- 3D printing is used to produce Prosthetics.
  - **True**
  - False

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- Identify the 2D radiographic image in the bellow mentioned list may be converted to 3D image with the 3D printing technology.
  - a. Living Cells
  - b. X-ray**
  - c. ECG
  - d. Optical nerve
- In bioprinting of organs which of the following concepts is used.
  - a. Vascular architecture**
  - b. Biofilms
  - c. Skin texture
  - d. Muscle layer