

National Testing Agency

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Biomass Characterization

Group Number :	1
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Biomass Characterization

Section Id :	899514248
Section Number :	1
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Number of Questions :	100
Number of Questions to be attempted :	100

Section Marks : 100
Mark As Answered Required? : Yes
Sub-Section Number : 1
Sub-Section Id : 899514293
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 89951415529 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Biomass energy source includes

1. Plants
2. Animals
3. Plant and anima
4. Plants, animals and their wastes

Options :

89951460679. 1
89951460680. 2
89951460681. 3
89951460682. 4

Question Number : 2 Question Id : 89951415530 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Sustainable energy source

1. Coal
2. Biomass
3. Fossil fuel
4. Coal and fossil fuel

Options :

89951460683. 1
89951460684. 2
89951460685. 3
89951460686. 4

Question Number : 3 Question Id : 89951415531 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following statements is not correct related to biomass energy

- 1. Biomass has more energy than a similar volume of fossil fuels**
- 2. Biomass is easily available and can be grown with relative ease in all parts of the world.**
- 3. When plant and animal wastes are used as fuel, they cannot be added to the soil as fertilizer.**
- 4. Biomass is an abundant, secure, environmental friendly, and renewable source of energy**

Options :

- 89951460687. 1**
- 89951460688. 2**
- 89951460689. 3**
- 89951460690. 4**

Question Number : 4 Question Id : 89951415532 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is a primary source of energy

- 1. Wind energy**
- 2. Solar energy**
- 3. Geothermal energy**
- 4. Hydropower**

Options :

- 89951460691. 1**
- 89951460692. 2**
- 89951460693. 3**
- 89951460694. 4**

Question Number : 5 Question Id : 89951415533 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The process used to release sugar from biomass polymers

1. Pyrolysis
2. Hydrolysis
3. Fermentation
4. Anaerobic digestion

Options :

89951460695. 1
89951460696. 2
89951460697. 3
89951460698. 4

**Question Number : 6 Question Id : 89951415534 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Edible crops mainly comes under

1. First generation bioenergy crop
2. Second generation bioenergy crop
3. Third generation bioenergy crop
4. Fourth generation bioenergy crop

Options :

89951460699. 1
89951460700. 2
89951460701. 3
89951460702. 4

**Question Number : 7 Question Id : 89951415535 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Fatty acid methyl esters is

1. Biodiesel
2. Chemical solvent
3. Biocrude
4. Biomethanol

Options :

- 89951460703. 1
- 89951460704. 2
- 89951460705. 3
- 89951460706. 4

Question Number : 8 Question Id : 89951415536 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ethanol is produced by the process

- 1. Gasification
- 2. Liquefaction
- 3. Fermentation
- 4. Cogeneration

Options :

- 89951460707. 1
- 89951460708. 2
- 89951460709. 3
- 89951460710. 4

Question Number : 9 Question Id : 89951415537 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Photofermentative method is used for the production of

- 1. Methane
- 2. Hydrogen
- 3. Landfill gas
- 4. Ethane

Options :

- 89951460711. 1
- 89951460712. 2
- 89951460713. 3
- 89951460714. 4

Question Number : 10 Question Id : 89951415538 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Monomer of lignin

1. p-coumaryl alcohol
2. Coniferyl alcohol
3. Sinapyl alcohol
4. All the above

Options :

89951460715. 1
89951460716. 2
89951460717. 3
89951460718. 4

Question Number : 11 Question Id : 89951415539 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Seaweeds are

1. Marine algae with large multicellular bodies
2. Marine microscopic algae
3. Algae having thick cell wall
4. Diatoms

Options :

89951460719. 1
89951460720. 2
89951460721. 3
89951460722. 4

Question Number : 12 Question Id : 89951415540 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ulvan is extracted from

1. Brown algae
2. Red algae
3. Green algae
4. Golden algae

Options :

89951460723. 1
89951460724. 2
89951460725. 3
89951460726. 4

**Question Number : 13 Question Id : 89951415541 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

BSA (Bovine serum albumin) is used for standard preparation in

1. Carbohydrate estimation
2. Protein estimation
3. Lignin estimation
4. Lipid estimation

Options :

89951460727. 1
89951460728. 2
89951460729. 3
89951460730. 4

**Question Number : 14 Question Id : 89951415542 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

The total solid content of biomass is estimated by

1. Muffle furnace
2. Hot air oven
3. Bomb colorimeter
4. TOC analyser

Options :

- 89951460731. 1
- 89951460732. 2
- 89951460733. 3
- 89951460734. 4

Question Number : 15 Question Id : 89951415543 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following cannot improve the density of biomass

- 1. Steam explosion
- 2. Ozonolysis
- 3. Briquette
- 4. Pelletizing

Options :

- 89951460735. 1
- 89951460736. 2
- 89951460737. 3
- 89951460738. 4

Question Number : 16 Question Id : 89951415544 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Amount of heat energy produced on _____ combustion of 1kg of fuel is called as calorific value

- 1. Incomplete
- 2. Complete
- 3. Half
- 4. None of these

Options :

- 89951460739. 1
- 89951460740. 2
- 89951460741. 3

89951460742. 4

Question Number : 17 Question Id : 89951415545 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In presence of which gas is the fuel burnt to generate energy in form of heat?

1. Oxygen
2. Hydrogen
3. Methane
4. Nitrogen

Options :

89951460743. 1
89951460744. 2
89951460745. 3
89951460746. 4

Question Number : 18 Question Id : 89951415546 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Substrate for fermentation

1. Acetic acid
2. Succinic acid
3. Pyruvic acid
4. Lactic acid

Options :

89951460747. 1
89951460748. 2
89951460749. 3
89951460750. 4

Question Number : 19 Question Id : 89951415547 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Wine making is an example for

1. Homolactic acid fermentation
2. Heterolactic acid fermentation
3. Alcohol fermentation
4. Propionate fermentation

Options :

89951460751. 1
89951460752. 2
89951460753. 3
89951460754. 4

**Question Number : 20 Question Id : 89951415548 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Fuel with higher heating value

1. Hydrogen
2. Methane
3. Ethanol
4. Gasoline

Options :

89951460755. 1
89951460756. 2
89951460757. 3
89951460758. 4

**Question Number : 21 Question Id : 89951415549 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Major component of biogas

1. Methane
2. CO₂
3. H₂
4. CO

Options :

- 89951460759. 1
- 89951460760. 2
- 89951460761. 3
- 89951460762. 4

Question Number : 22 Question Id : 89951415550 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Methane can be produced from Agricultural Wastes through _____

- 1. Anaerobic digestion
- 2. Aerobic digestion
- 3. Distillation
- 4. Hydrothermal treatment

Options :

- 89951460763. 1
- 89951460764. 2
- 89951460765. 3
- 89951460766. 4

Question Number : 23 Question Id : 89951415551 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following can cause degradation to stored biomass?

- 1. High moisture content
- 2. Small particle size
- 3. Auto-ignition
- 4. All the above

Options :

- 89951460767. 1
- 89951460768. 2
- 89951460769. 3
- 89951460770. 4

Question Number : 24 Question Id : 89951415552 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Providing low amount of oxygen can lead to

1. Incomplete combustion
2. Complete combustion
3. Production of high amount of CO₂
4. Production of high amount of H₂

Options :

89951460771. 1
89951460772. 2
89951460773. 3
89951460774. 4

Question Number : 25 Question Id : 89951415553 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following has a negative effect during combustion

1. Biomass with high density
2. Biomass having high ash content
3. Biomass having high calorific value
4. All the above

Options :

89951460775. 1
89951460776. 2
89951460777. 3
89951460778. 4

Question Number : 26 Question Id : 89951415554 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Why biomass burning is called as carbon neutral?

1. It does not emit CO₂ while
2. CO₂ is emitted during biomass burning but it is absorbed during biomass production
3. CO₂ emission by biomass is negligible
4. None of these

Options :

89951460779. 1

89951460780. 2

89951460781. 3

89951460782. 4

Question Number : 27 Question Id : 89951415555 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Among the following, primary biomass production is carried out by

1. Bacteria
2. Fungi
3. Plants
4. Animals

Options :

89951460783. 1

89951460784. 2

89951460785. 3

89951460786. 4

Question Number : 28 Question Id : 89951415556 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an alternative energy source

1. Geothermal energy
2. Hydropower energy
3. Tidal energy
4. Nuclear energy

Options :

- 89951460787. 1
- 89951460788. 2
- 89951460789. 3
- 89951460790. 4

Question Number : 29 Question Id : 89951415557 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Pyrolysis is a

- 1. Biological conversion
- 2. Thermochemical conversion
- 3. Physical conversion
- 4. Biochemical conversion

Options :

- 89951460791. 1
- 89951460792. 2
- 89951460793. 3
- 89951460794. 4

Question Number : 30 Question Id : 89951415558 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fruit and vegetable wastes are commonly used for

- 1. Combustion
- 2. Anaerobic digestion
- 3. Pyrolysis
- 4. Gasification

Options :

- 89951460795. 1
- 89951460796. 2
- 89951460797. 3
- 89951460798. 4

Question Number : 31 Question Id : 89951415559 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Transesterification process produce

1. Biodiesel
2. Hydrogen
3. Ethanol
4. Methane

Options :

89951460799. 1
89951460800. 2
89951460801. 3
89951460802. 4

Question Number : 32 Question Id : 89951415560 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Microbial electrolysis cells are used for the production of

1. Methane
2. Hydrogen
3. Methanol
4. Ethanol

Options :

89951460803. 1
89951460804. 2
89951460805. 3
89951460806. 4

Question Number : 33 Question Id : 89951415561 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not an open cultivation system for algal culturing

1. Photobioreactor
2. Shallow pond
3. Circular pond
4. Raceway pond

Options :

89951460807. 1
89951460808. 2
89951460809. 3
89951460810. 4

**Question Number : 34 Question Id : 89951415562 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Pigment extracted from microalgae

1. Phycobilin
2. Beta Carotene
3. Lutein
4. All the above

Options :

89951460811. 1
89951460812. 2
89951460813. 3
89951460814. 4

**Question Number : 35 Question Id : 89951415563 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Muffle furnace is used to determine

1. Ash content of biomass
2. Moisture content of biomass
3. Total solid content of biomass
4. Organic molecules present in biomass

Options :

- 89951460815. 1
- 89951460816. 2
- 89951460817. 3
- 89951460818. 4

Question Number : 36 Question Id : 89951415564 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Phenol and sulphuric acid are the major reagents for the estimation of

1. Lignin
2. Protein
3. Lipid
4. Carbohydrate

Options :

- 89951460819. 1
- 89951460820. 2
- 89951460821. 3
- 89951460822. 4

Question Number : 37 Question Id : 89951415565 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following method is ideal for drying large quantity of biomass

1. Air drying
2. Oven drying
3. Freeze drying
4. None of these

Options :

89951460823. 1
89951460824. 2
89951460825. 3
89951460826. 4

**Question Number : 38 Question Id : 89951415566 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Which of the following belongs to ultimate analysis

1. Elemental analysis
2. Moisture content analysis
3. Volatile content analysis
4. All the above

Options :

89951460827. 1
89951460828. 2
89951460829. 3
89951460830. 4

**Question Number : 39 Question Id : 89951415567 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0**

Which of the following is more resistant to degradation?

1. Pectin
2. Lignin
3. Chitin
4. Protein

Options :

- 89951460831. 1
- 89951460832. 2
- 89951460833. 3
- 89951460834. 4

Question Number : 40 Question Id : 89951415568 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Identify the wrong option regarding saccharification

- 1. It is a type of hydrolysis
- 2. It involves the breakdown of cellulose
- 3. It is carried out prior to fermentation
- 4. None of these

Options :

- 89951460835. 1
- 89951460836. 2
- 89951460837. 3
- 89951460838. 4

Question Number : 41 Question Id : 89951415569 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following has a negative effect on biomass combustion

- 1. High density biomass
- 2. Biomass with high calorific value
- 3. Biomass with high volatile matter
- 4. Biomass with high amount of inorganic compounds

Options :

- 89951460839. 1
- 89951460840. 2
- 89951460841. 3
- 89951460842. 4

Question Number : 42 Question Id : 89951415570 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Yogurt is obtained through

1. Ethanol fermentation
2. Acetate fermentation
3. Butyrate fermentation
4. Lactic acid fermentation

Options :

- 89951460843. 1
- 89951460844. 2
- 89951460845. 3
- 89951460846. 4

Question Number : 43 Question Id : 89951415571 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Which of the following is not suitable for fermentation

1. Lignin
2. Starch
3. Starch
4. Cellulose

Options :

- 89951460847. 1
- 89951460848. 2
- 89951460849. 3
- 89951460850. 4

Question Number : 44 Question Id : 89951415572 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

_____ involves the splitting of water to hydrogen using the photosynthetic mechanism of plants

1. Biological water–gas shift reaction
2. Biophotolysis
3. Dark fermentation
4. Photo-fermentation

Options :

89951460851. 1
89951460852. 2
89951460853. 3
89951460854. 4

Question Number : 45 Question Id : 89951415573 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Arrange the following steps of anaerobic digestion in the order in which they occur

- A. Methanogenesis
B. Acidogenesis
C. Hydrolysis
D. Acetogenesis
1. C → B → D → A
2. B → C → D → A
3. C → A → B → D
4. C → A → D → B

Options :

89951460855. 1
89951460856. 2
89951460857. 3
89951460858. 4

Question Number : 46 Question Id : 89951415574 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Reason for the auto-ignition of stored biomass

1. Respiration of microorganisms
2. Storage of biomass with small particle size
3. Lack of proper air passage inside the biomass pile
4. All the above

Options :

89951460859. 1

89951460860. 2

89951460861. 3

89951460862. 4

Question Number : 47 Question Id : 89951415575 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Ethanol fermentation is carried out by

1. *Lactococcus*
2. *Streptococcus*
3. *Saccharomyces*
4. *Thermotoga*

Options :

89951460863. 1

89951460864. 2

89951460865. 3

89951460866. 4

Question Number : 48 Question Id : 89951415576 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not related to experimental validation

1. It checks the accuracy of a process prior to its implementation at large scale
2. It gives basic concepts related to a process
3. It helps to simulate a process
4. None of these

Options :

- 89951460867. 1
- 89951460868. 2
- 89951460869. 3
- 89951460870. 4

Question Number : 49 Question Id : 89951415577 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is not used as a gasification medium

- 1. Natural air
- 2. Oxygen
- 3. Steam
- 4. Carbon dioxide

Options :

- 89951460871. 1
- 89951460872. 2
- 89951460873. 3
- 89951460874. 4

Question Number : 50 Question Id : 89951415578 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fluorescence property of the sample is utilized in

- 1. Compound Microscopy
- 2. Digital Microscopy
- 3. Simple Microscopy
- 4. Laser Scanning Confocal Microscopy

Options :

- 89951460875. 1
- 89951460876. 2
- 89951460877. 3
- 89951460878. 4

Question Number : 51 Question Id : 89951415579 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Secondary biomass production includes

- A. Biomass generation by plants
- B. Assimilation of organic material by herbivores
- C. Assimilation of organic material by carnivores
- D. Assimilation of organic material by decomposers

- 1. A
- 2. B, C
- 3. B, C, D
- 4. A, B

Options :

- 89951460879. 1
- 89951460880. 2
- 89951460881. 3
- 89951460882. 4

Question Number : 52 Question Id : 89951415580 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is an alternate energy source

- 1. Sunlight
- 2. Hydropower
- 3. Biomass
- 4. All the above

Options :

- 89951460883. 1
- 89951460884. 2
- 89951460885. 3
- 89951460886. 4

Question Number : 53 Question Id : 89951415581 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Physical conversion	i. Pyrolysis
B. Thermochemical conversion	ii. Fermentation
C. Biological conversion	iii. Squeezing

1. A-i, B-ii, C-iii
2. A-iii, B-ii, C-i
3. A-iii, B-i, C-ii
4. A-ii, B-iii, C-i

Options :

89951460887. 1
89951460888. 2
89951460889. 3
89951460890. 4

Question Number : 54 Question Id : 89951415582 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Identify the wrong statement

1. Biomass with high moisture content is not suitable for thermochemical conversion
2. Lignocellulosic biomass shows less recalcitrance than non-lignocellulosic biomass
3. Lignocellulosic biomass is mainly composed of cellulose, hemicellulose and lignin
4. Bulk density of biomass can affect the conversion process

Options :

89951460891. 1
89951460892. 2
89951460893. 3
89951460894. 4

Question Number : 55 Question Id : 89951415583 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Energy cane is a genetically modified crop used for the production of

1. Biomethane
2. Hydrogen
3. Syn gas
4. Ethanol

Options :

89951460895. 1

89951460896. 2

89951460897. 3

89951460898. 4

Question Number : 56 Question Id : 89951415584 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Most common way to produce biodiesel

1. Transesterification
2. Pyrolysis
3. Gasification
4. Cogeneration

Options :

89951460899. 1

89951460900. 2

89951460901. 3

89951460902. 4

Question Number : 57 Question Id : 89951415585 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Match the following

Methanol	i. Sugar
Ethanol	ii. Garbage
P series fuel	iii. Syn gas

1. A-i, B-ii, C-iii
2. A-iii, B-ii, C-i
3. A-ii, B-i, C-iii
4. A-iii, B-i, C-ii

Options :

89951460903. 1

89951460904. 2

89951460905. 3

89951460906. 4

Question Number : 58 Question Id : 89951415586 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Identify the wrong statement

1. Biodiesel is produced through transesterification
2. Ethanol is obtained through the fermentation of sugars
3. Biodiesel cannot be produced from animal fat
4. Biocrude is a complex mixture of lipids, triglycerides, waxes, terpenoids, polysterol and other modified isoprenoids

Options :

89951460907. 1

89951460908. 2

89951460909. 3

89951460910. 4

Question Number : 59 Question Id : 89951415587 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Microbial electrolysis cells (MECs) are used for the production of

1. Hydrogen
2. Biogas
3. Methane
4. Syn gas

Options :

89951460911. 1
89951460912. 2
89951460913. 3
89951460914. 4

Question Number : 60 Question Id : 89951415588 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Landfill gas	i. Hydrogen
B. Biomass derived liquid reforming	ii. CO + H ₂
C. Hydrogen fuel cell	iii. Methane
D. Syn gas	iv. Electricity

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

Options :

89951460915. 1
89951460916. 2
89951460917. 3
89951460918. 4

Question Number : 61 Question Id : 89951415589 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Total solid content of biomass of biomass refers to

1. Weight of the biomass after removing moisture content from it
2. Weight of the biomass after removing volatile matter from it
3. Total inorganic matter present in the biomass
4. None of these

Options :

89951460919. 1

89951460920. 2

89951460921. 3

89951460922. 4

Question Number : 62 Question Id : 89951415590 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fixed carbon content is determined by subtracting _____ from the biomass

- A. Moisture content
- B. Volatile matter
- C. Ash content

1. A
2. A, B, C
3. A, C
4. A, B

Options :

89951460923. 1

89951460924. 2

89951460925. 3

89951460926. 4

Question Number : 63 Question Id : 89951415591 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Biomass recalcitrance is offered by

1. Cell wall cross links
2. Acetylation of cell wall
3. Waxy epidermis
4. All the above

Options :

- 89951460927. 1
- 89951460928. 2
- 89951460929. 3
- 89951460930. 4

Question Number : 64 Question Id : 89951415592 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Monomer unit of hemicellulose

- 1. Xylose
- 2. Arabinose
- 3. Mannose
- 4. All the above

Options :

- 89951460931. 1
- 89951460932. 2
- 89951460933. 3
- 89951460934. 4

Question Number : 65 Question Id : 89951415593 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Identify the correct statement

- A. Lignin is an aromatic polymer of phenol
 - B. Most of the lignin gets deposited on the secondary wall of plant cell
 - C. Lignin polymers are covalently linked to carbohydrates to form lignin-carbohydrate complex
 - D. Lignin provides mechanical support to plants
- 1. B, D
 - 2. B, C, D
 - 3. C, D
 - 4. A, B, C, D

Options :

- 89951460935. 1
- 89951460936. 2

89951460937. 3

89951460938. 4

Question Number : 66 Question Id : 89951415594 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

True lignin is present in

- A. Algae
- B. Bryophytes
- C. Pteridophytes
- D. Gymnosperms
- E. Angiosperms

- 1. D, E
- 2. C, D, E
- 3. B, C, D, E
- 4. A, B, C, D, E

Options :

89951460939. 1

89951460940. 2

89951460941. 3

89951460942. 4

Question Number : 67 Question Id : 89951415595 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Photobioreactor	i. Large volume of culture can be grown
B. Raceway pond	ii. Prone to contamination
	iii. Less prone to contamination
	iv. Low oxygen buildup
	v. Cost effective

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

Options :

89951460943. 1
89951460944. 2
89951460945. 3
89951460946. 4

Question Number : 68 Question Id : 89951415596 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Cultivation of seaweed supporting vegetative propagation is usually done through

1. One-step farming
2. Two-step farming
3. Multi-step farming
4. All the above

Options :

89951460947. 1
89951460948. 2
89951460949. 3
89951460950. 4

Question Number : 69 Question Id : 89951415597 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

An excellent sources for astaxanthin

1. *Spirulina*
2. *Haematococcus*
3. *Chlorella*
4. All the above

Options :

89951460951. 1
89951460952. 2
89951460953. 3
89951460954. 4

Question Number : 70 Question Id : 89951415598 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A secondary metabolite extracted from algae having bioactive properties

1. Terpenoid
2. Lutein
3. Zeaxanthin
4. β - carotene

Options :

89951460955. 1
89951460956. 2
89951460957. 3
89951460958. 4

Question Number : 71 Question Id : 89951415599 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Commercially important algal polysaccharide commonly used for the preparation of solid medium

1. Alginate
2. Agar
3. Carrageenan
4. Mannitol

Options :

89951460959. 1

89951460960. 2

89951460961. 3

89951460962. 4

Question Number : 72 Question Id : 89951415600 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Monochromator and cuvet belongs to

1. Bomb calorimeter
2. Spectrophotometer
3. Muffle furnace
4. Elemental analyser

Options :

89951460963. 1

89951460964. 2

89951460965. 3

89951460966. 4

Question Number : 73 Question Id : 89951415601 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Hot air oven	i. Catalytic oxidation of biomass
B. Spectrophotometer	ii. Gas chromatography
C. Elemental analyser	iii. Thermal conduction
D. TOC analyser	iv. Beer- ambert's law

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

Options :

89951460967. 1

89951460968. 2

89951460969. 3

89951460970. 4

Question Number : 74 Question Id : 89951415602 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Carbohydrate	i. Anthrone
B. Lipid	ii. Phenol, Sulphuric acid
C. Protein	iii. Chloroform, methanol
D. Cellulose	iv. Folin- ciocalteau

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

Options :

89951460971. 1

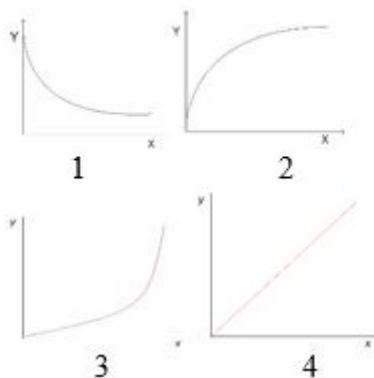
89951460972. 2

89951460973. 3

89951460974. 4

Question Number : 75 Question Id : 89951415603 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

A standard graph is represented as



Options :

- 89951460975. 1
- 89951460976. 2
- 89951460977. 3
- 89951460978. 4

Question Number : 76 Question Id : 89951415604 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Heat sensitive substances are dried using

- 1. Air drying
- 2. Lyophilization
- 3. Oven drying
- 4. All the above

Options :

- 89951460979. 1
- 89951460980. 2
- 89951460981. 3
- 89951460982. 4

Question Number : 77 Question Id : 89951415605 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

For increasing the production of hydrogen _____ is used as gasification agent

- 1. Air
- 2. Oxygen
- 3. Steam
- 4. All the above

Options :

- 89951460983. 1
- 89951460984. 2
- 89951460985. 3
- 89951460986. 4

Question Number : 78 Question Id : 89951415606 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Washing/leaching is done to remove

1. All the metallic elements
2. All the non-metallic elements
3. Alkali compounds
4. Acidic compounds

Options :

89951460987. 1

89951460988. 2

89951460989. 3

89951460990. 4

Question Number : 79 Question Id : 89951415607 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Proximate analysis includes the estimation of

1. Moisture content
2. Volatile matter
3. Ash content
4. All the above

Options :

89951460991. 1

89951460992. 2

89951460993. 3

89951460994. 4

Question Number : 80 Question Id : 89951415608 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Identify the correct statement

- A. Volatile matter helps for the easy ignition of biomass
- B. Biomass with higher volatile matter content are suitable for biofuel production
- C. Biomass with high volatile matter content can be used for the production of flavourings and fragrance

- 1. A, B, C
- 2. A, C
- 3. B, C
- 4. A, B

Options :

- 89951460995. 1
- 89951460996. 2
- 89951460997. 3
- 89951460998. 4

Question Number : 81 Question Id : 89951415609 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is not used for the analysis of elements?

- 1. Gravimetric analysis
- 2. TOC analyser
- 3. Colorimetric analysis
- 4. Atomic absorption spectroscopy

Options :

- 89951460999. 1
- 89951461000. 2
- 89951461001. 3
- 89951461002. 4

Question Number : 82 Question Id : 89951415610 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

A. Elemental analyser	i. Precipitation of insoluble complex
B. Gravimetric analysis	ii. Electronic structure of elements
C. Colorimetric analysis	iii. Gas chromatography
D. Atomic absorption spectroscopy	iv. Spectrophotometer

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

Options :

89951461003. 1

89951461004. 2

89951461005. 3

89951461006. 4

Question Number : 83 Question Id : 89951415611 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

The distribution of light energies is called as

1. Fluorescence
2. Phosphorescence
3. Refraction
4. Spectrum

Options :

89951461007. 1

89951461008. 2

89951461009. 3

89951461010. 4

Question Number : 84 Question Id : 89951415612 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Biorefinery product

1. Biogas
2. Alcohols
3. Hydrogen
4. All the above

Options :

89951461011. 1

89951461012. 2

89951461013. 3

89951461014. 4

Question Number : 85 Question Id : 89951415613 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Identify the incorrect statement related to pretreatment process

- A. It should alter the complex wall polymers
- B. Operational costs should be minimum
- A. It should cause a minimum damage of cellulose and hemicellulose
- B. It should show high lignin recovery

1. A, B, C
2. B, C, D
3. A, B, C, D
4. A, B

Options :

89951461015. 1

89951461016. 2

89951461017. 3

89951461018. 4

Question Number : 86 Question Id : 89951415614 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Match the following

A. Physical pretreatment	i. Ozonolysis
B. Chemical pretreatment	ii. Steam explosion
C. Physico-chemical pretreatment	iii. Extrusion

1. A- i, B- ii, C- iii
2. A- iii, B- ii, C- i
3. A- iii, B- i, C- ii
4. A- ii, B- i, C- iii

Options :

89951461019. 1

89951461020. 2

89951461021. 3

89951461022. 4

Question Number : 87 Question Id : 89951415615 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Match the following

Carbohydrate	i. Lactase
Protein	ii. Laccase
Lipid	iii. Elastase
Lignin	iv. Lipase

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

Options :

89951461023. 1

89951461024. 2

89951461025. 3

89951461026. 4

Question Number : 88 Question Id : 89951415616 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Enzyme not used in saccharification process

1. Lipase
2. Amylase
3. Cellulase
4. Xylanase

Options :

89951461027. 1
89951461028. 2
89951461029. 3
89951461030. 4

Question Number : 89 Question Id : 89951415617 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Biomass property favourable for combustion

1. Large particle size
2. High volatile content
3. High ash content
4. Low calorific value

Options :

89951461031. 1
89951461032. 2
89951461033. 3
89951461034. 4

Question Number : 90 Question Id : 89951415618 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No
Correct Marks : 1 Wrong Marks : 0

Match the following

Combustion	i. Lesser amount of oxygen
Gasification	ii. Larger amount of oxygen
	iii. Partial oxidation of components
	iv. More CO ₂

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

Options :

89951461035. 1

89951461036. 2

89951461037. 3

89951461038. 4

Question Number : 91 Question Id : 89951415619 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Product of incomplete combustion

1. CO
2. CO₂
3. H₂O
4. SO₂

Options :

89951461039. 1

89951461040. 2

89951461041. 3

89951461042. 4

Question Number : 92 Question Id : 89951415620 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Products of pyrolysis

- A. Syngas
 - B. Bio-oil
 - C. Bio-char
 - D. Ammonia
1. A
 2. A, B
 3. A, B, C
 4. A, B, C, D

Options :

- 89951461043. 1
- 89951461044. 2
- 89951461045. 3
- 89951461046. 4

Question Number : 93 Question Id : 89951415621 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In which of the following combustion system, biomass particles are lifted upward and combustion takes place in suspension

1. Fluidized bed combustion
2. Under feed stocker
3. Travelling grate stocker
4. Over feed stocker

Options :

- 89951461047. 1
- 89951461048. 2
- 89951461049. 3
- 89951461050. 4

Question Number : 94 Question Id : 89951415622 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Match the following

A. Ethanol fermentation	i. <i>Citrobacter</i>
B. Lactic acid fermentation	ii. <i>Enterobacter</i>
C. Mixed acid fermentation	iii. <i>Lactobacillus</i>
D. Butanediol fermentation	iv. <i>Saccharomyces</i>

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

Options :

89951461051. 1
89951461052. 2
89951461053. 3
89951461054. 4

Question Number : 95 Question Id : 89951415623 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Important properties of fermentation products

- A. Probiotics
- B. Antimicrobial property
- C. Antioxidant property
- D. Degradation of anti-nutritive compounds

1. A
2. A, C
3. B, C
4. A, B, C, D

Options :

89951461055. 1
89951461056. 2
89951461057. 3
89951461058. 4

Question Number : 96 Question Id : 89951415624 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

In Microbial fuel cells (MFC) microorganisms are found in

1. Anode
2. Cathode
3. Both anode and cathode
4. Proton or cation exchange membrane

Options :

89951461059. 1

89951461060. 2

89951461061. 3

89951461062. 4

Question Number : 97 Question Id : 89951415625 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following microorganisms can metabolize glycerol?

1. Homoacetogenic bacteria
2. *Escherichia coli*
3. Hydrogen trophic methanogenic archaea
4. All the above

Options :

89951461063. 1

89951461064. 2

89951461065. 3

89951461066. 4

Question Number : 98 Question Id : 89951415626 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Laccase is used for the degradation of

1. Lignin
2. Cellulose
3. Pectin
4. Hemicellulose

Options :

89951461067. 1
89951461068. 2
89951461069. 3
89951461070. 4

Question Number : 99 Question Id : 89951415627 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following can lead to reduction in product yield during anaerobic digestion?

1. High lipid content in the substrate
2. Overloading of substrate
3. Low nitrogen content in the substrate
4. High moisture content

Options :

89951461071. 1
89951461072. 2
89951461073. 3
89951461074. 4

Question Number : 100 Question Id : 89951415628 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Hydrogenase enzyme is present in

1. Direct biophotolysis
2. Indirect biophotolysis
3. Present in both direct and indirect biophotolysis
4. Absent in both direct and indirect biophotolysis

Options :

89951461075. 1
89951461076. 2
89951461077. 3
89951461078. 4

