

National Testing Agency

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Microbial Physiology and metabolism

Group Number :	1
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Microbial Physiology and metabolism-1

Section Id :	864351628
Section Number :	1
Section type :	Online
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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 : 864351800
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 86435114700 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The protein part of the enzyme is called

1. Coenzyme
2. Abzymes
3. Protease
4. Apo enzyme

Options :

- 86435149569. 1
- 86435149570. 2
- 86435149571. 3
- 86435149572. 4

Question Number : 2 Question Id : 86435114701 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Abzyme is a

1. Isoenzyme
2. Allosteric enzyme
3. Antibody
4. Abnormal enzyme

Options :

- 86435149573. 1

86435149574. 2

86435149575. 3

86435149576. 4

Question Number : 3 Question Id : 86435114702 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Enzymes exist in the cells as

1. Solid
2. Crystals
3. Colloid
4. None of the above

Options :

86435149577. 1

86435149578. 2

86435149579. 3

86435149580. 4

Question Number : 4 Question Id : 86435114703 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?

1. All enzymes are specific in action.
2. All enzymes are biocatalysts.
3. All enzymes are proteins except ribozymes.
4. All proteins are enzymes.

Options :

86435149581. 1

86435149582. 2

86435149583. 3

86435149584. 4

Question Number : 5 Question Id : 86435114704 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Lock and Key model is also known as

1. Template theory
2. Induced fit theory
3. Khosland's theory
4. None of the above

Options :

- 86435149585. 1
- 86435149586. 2
- 86435149587. 3
- 86435149588. 4

Question Number : 6 Question Id : 86435114705 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What is the number of molecules of substances that are acted upon by an enzyme per minute?

1. Substrate number
2. Enzyme number
3. Activation number
4. Turn over number

Options :

- 86435149589. 1
- 86435149590. 2
- 86435149591. 3
- 86435149592. 4

Question Number : 7 Question Id : 86435114706 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What happens to activation energy in an enzyme-catalyzed reaction?

1. Decreases
2. Increases
3. Remains the same
4. None of the above

Options :

- 86435149593. 1
- 86435149594. 2
- 86435149595. 3
- 86435149596. 4

Question Number : 8 Question Id : 86435114707 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blanks

In *E. coli* the shift between aerobic and anaerobic, growth is controlled by _____ and _____ system.

1. Dme and tme
2. Mdh and sdh
3. Pod and pck
4. FNR and arc AB

Options :

- 86435149597. 1
- 86435149598. 2
- 86435149599. 3
- 86435149600. 4

Question Number : 9 Question Id : 86435114708 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following reaction(s) yield(s) more energy?



Choose the **correct** answer from the options given below:

1. I & II yields an equal amount of energy
2. I
3. II
4. I & II are not energy yielding reactions

Options :

86435149601. 1

86435149602. 2

86435149603. 3

86435149604. 4

Question Number : 10 Question Id : 86435114709 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The choice of the electron acceptor is used in the following preference.

1. Oxygen>nitrate>nitrite>fumarate>DMSO>TMAO
2. Oxygen>nitrate>nitrite>DMSO>TMAO>fumarate
3. Fumarate>TMAO>DMSO>nitrite>nitrate>oxygen
4. Oxygen>fumarate>nitrate>nitrite>DMSO>TMAO

Options :

86435149605. 1

86435149606. 2

86435149607. 3

86435149608. 4

Question Number : 11 Question Id : 86435114710 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is an indirect method for measuring bacterial growth?

1. Cell count
2. Cell mass
3. Cell activity
4. None of the above

Options :

86435149609. 1

86435149610. 2

86435149611. 3

86435149612. 4

Question Number : 12 Question Id : 86435114711 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is the relationship between optical density and cell mass?

1. Exponentially proportional
2. Linearly proportional
3. Inversely proportional
4. Not related

Options :

86435149613. 1

86435149614. 2

86435149615. 3

86435149616. 4

Question Number : 13 Question Id : 86435114712 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following micronutrients is retrieved from media to enhance citric acid production?

1. Fe²⁺ ions
2. Cu²⁺ ions
3. Molybdenum ions
4. Au ions

Options :

- 86435149617. 1
- 86435149618. 2
- 86435149619. 3
- 86435149620. 4

Question Number : 14 Question Id : 86435114713 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which method is preferred for the production of penicillin?

1. Synchronous growth culture
2. Continuous Growth Culture
3. Batch culture
4. None of the above

Options :

- 86435149621. 1
- 86435149622. 2
- 86435149623. 3
- 86435149624. 4

Question Number : 15 Question Id : 86435114714 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The chemostat and turbidostat are the types of bioreactors that are used in which of the following cultures?

1. Batch culture
2. Continuous culture
3. Solid State culture
4. None of the above

Options :

- 86435149625. 1
- 86435149626. 2
- 86435149627. 3
- 86435149628. 4

Question Number : 16 Question Id : 86435114715 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fad R is regulator involved in starvation stress response and it is known to regulate

1. Fatty acid metabolism
2. Aminoacid metabolism
3. Carbohydrate metabolism
4. All of the above

Options :

- 86435149629. 1
- 86435149630. 2
- 86435149631. 3
- 86435149632. 4

Question Number : 17 Question Id : 86435114716 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In the log phase, cell numbers progress in

1. Arithmetic progression
2. Geometric progression
3. Harmonic progression
4. None of the above

Options :

- 86435149633. 1
- 86435149634. 2
- 86435149635. 3
- 86435149636. 4

Question Number : 18 Question Id : 86435114717 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What is the pressure created on walls when a bacterial cell is placed in a hypotonic solution?

1. Differential pressure
2. Turgor pressure
3. Atmospheric pressure
4. All of the above

Options :

- 86435149637. 1
- 86435149638. 2
- 86435149639. 3
- 86435149640. 4

Question Number : 19 Question Id : 86435114718 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Organisms present in the marine environment are called

1. Acidophiles
2. Neutrophiles
3. Osmophiles
4. Halophiles

Options :

- 86435149641. 1
- 86435149642. 2
- 86435149643. 3
- 86435149644. 4

Question Number : 20 Question Id : 86435114719 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following enzyme catalyzes the decomposition of H_2O_2 ?

1. Superoxide dismutase
2. Catalase
3. Heme oxygenase
4. None of the above

Options :

- 86435149645. 1
- 86435149646. 2
- 86435149647. 3
- 86435149648. 4

Question Number : 21 Question Id : 86435114720 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following types of organisms uses sunlight as its source of energy and gets carbon from organic compounds?

1. Photoautotrophs
2. Photoheterotrophs
3. Chemoheterotrophs
4. Chemoautotrophs

Options :

- 86435149649. 1
- 86435149650. 2
- 86435149651. 3
- 86435149652. 4

Question Number : 22 Question Id : 86435114721 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following depends on the dead and decaying matter for their energy?

1. Nitrifiers
2. Parasites
3. Saprophytes
4. Symbiotic bacteria

Options :

- 86435149653. 1
- 86435149654. 2
- 86435149655. 3
- 86435149656. 4

Question Number : 23 Question Id : 86435114722 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is/are example(s) of active transport?

1. Antiport
2. Symport
3. Exocytosis and Endocytosis
4. All of the above

Options :

- 86435149657. 1
- 86435149658. 2
- 86435149659. 3
- 86435149660. 4

Question Number : 24 Question Id : 86435114723 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What does ABC stand for in ABC transporters?

1. ATP- binding cassettes
2. Antiport binding cassettes
3. ATP binding domain
4. None of the above

Options :

- 86435149661. 1
- 86435149662. 2
- 86435149663. 3
- 86435149664. 4

Question Number : 25 Question Id : 86435114724 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Facilitated diffusion moves substances across the membrane with the aid of

1. Membrane proteins
2. Concentration gradient
3. Energy
4. All of the above

Options :

- 86435149665. 1
- 86435149666. 2
- 86435149667. 3
- 86435149668. 4

Question Number : 26 Question Id : 86435114725 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following types of transport is involved in nerve signalling?

1. Passive diffusion
2. Simple diffusion
3. Sodium-potassium pump
4. Osmosis

Options :

- 86435149669. 1
- 86435149670. 2
- 86435149671. 3
- 86435149672. 4

Question Number : 27 Question Id : 86435114726 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Active transport requires the use of:

1. Carbon dioxide
2. Energy
3. Concentration gradient
4. None of the above

Options :

- 86435149673. 1
- 86435149674. 2
- 86435149675. 3
- 86435149676. 4

Question Number : 28 Question Id : 86435114727 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which cellular glycoprotein is involved in the uptake of iron in bacteria?

1. Lactoferrin
2. Transferrin
3. Both options 1 and 2
4. None of the above

Options :

- 86435149677. 1
- 86435149678. 2
- 86435149679. 3
- 86435149680. 4

Question Number : 29 Question Id : 86435114728 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is the specialized bacterial protein capable of acquiring heme?

1. Haemolysin
2. Cytolysins
3. Hemophores
4. Siderophores

Options :

- 86435149681. 1
- 86435149682. 2
- 86435149683. 3
- 86435149684. 4

Question Number : 30 Question Id : 86435114729 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Why are sugars like glucose phosphorylated by PTS while taking it into cells?

1. To make sugars energy-rich
2. To make the transfer expensive
3. To prevent sugars' leakage into the extracellular fluid or the cell's exterior
4. None of the above

Options :

- 86435149685. 1
- 86435149686. 2
- 86435149687. 3
- 86435149688. 4

Question Number : 31 Question Id : 86435114730 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is water soluble pigment?

1. Chl a
2. Chl b
3. Carotenoids
4. Phycobilins

Options :

- 86435149689. 1
- 86435149690. 2
- 86435149691. 3
- 86435149692. 4

Question Number : 32 Question Id : 86435114731 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

To a higher extent, Chlorophyll has the ability to absorb light with wavelengths which are

1. Blue-red
2. Green-violet
3. Yellow-green
4. Yellow-blue

Options :

- 86435149693. 1
- 86435149694. 2
- 86435149695. 3
- 86435149696. 4

Question Number : 33 Question Id : 86435114732 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Chemosynthetic bacteria obtain energy from

1. Sun light
2. Infra red rays
3. Organic substances
4. Inorganic chemicals

Options :

- 86435149697. 1
- 86435149698. 2
- 86435149699. 3
- 86435149700. 4

Question Number : 34 Question Id : 86435114733 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Energy required for ATP synthesis in PSII comes from

1. Proton gradient
2. Electron gradient
3. Reduction of glucose
4. Oxidation of glucose

Options :

- 86435149701. 1
- 86435149702. 2
- 86435149703. 3
- 86435149704. 4

Question Number : 35 Question Id : 86435114734 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Splitting of water is associated with

1. Photosystem I
2. Lumen of thylakoid
3. Both Photosystem I and II
4. Inner surface of thylakoid membrane

Options :

- 86435149705. 1
- 86435149706. 2
- 86435149707. 3
- 86435149708. 4

Question Number : 36 Question Id : 86435114735 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which pathway is involved in the fixation of CO₂ in Green sulfur bacteria?

1. Reverse electron flow
2. Citric acid cycle
3. Calvin cycle
4. Reverse citric acid cycle

Options :

- 86435149709. 1
- 86435149710. 2
- 86435149711. 3
- 86435149712. 4

Question Number : 37 Question Id : 86435114736 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which is the first C₄ carbon compound produced in C₄ pathway?

1. Phosphoenol pyruvate
2. Oxaloacetic acid
3. Fumarate
4. Xylulose

Options :

- 86435149713. 1
- 86435149714. 2
- 86435149715. 3
- 86435149716. 4

Question Number : 38 Question Id : 86435114737 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is known as a Hatch-Slack pathway?

1. C₂
2. C₃
3. C₄
4. None of the above

Options :

- 86435149717. 1
- 86435149718. 2
- 86435149719. 3
- 86435149720. 4

Question Number : 39 Question Id : 86435114738 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is the electron donor in oxygenic photophosphorylation?

1. H₂S
2. Fe²⁺
3. O₂
4. H₂O

Options :

- 86435149721. 1
- 86435149722. 2
- 86435149723. 3
- 86435149724. 4

Question Number : 40 Question Id : 86435114739 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is/are the electron donor(s) in purple sulfur bacteria?

1. Sulfide
2. Thiosulfate
3. Ferrous iron
4. All of the above

Options :

- 86435149725. 1
- 86435149726. 2
- 86435149727. 3
- 86435149728. 4

Question Number : 41 Question Id : 86435114740 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Mixotrophs are defined as the group of organisms which

1. Grow using both organic compounds and light as carbon and energy sources, respectively
2. Grow using both inorganic compounds and light as carbon and energy sources, respectively
3. Grow using both organic and inorganic compounds as carbon and energy sources, respectively
4. None of the above

Options :

- 86435149729. 1
- 86435149730. 2
- 86435149731. 3
- 86435149732. 4

Question Number : 42 Question Id : 86435114741 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Soluble hydrogenase and particulate hydrogenase are involved in which of the following processes, respectively?

1. Reducing NADP and Transfer of electron from hydrogen to coenzyme Q through electron transport chain leading to generation of ATP
2. Transfer of electron from hydrogen to coenzyme Q through electron transport chain leading to generation of ATP and Reducing NADP
3. Reducing FAD and Transfer of electron from hydrogen to FAD through electron transport chain leading to generation of ATP
4. None of the above

Options :

- 86435149733. 1
- 86435149734. 2
- 86435149735. 3
- 86435149736. 4

Question Number : 43 Question Id : 86435114742 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Photolithotrophic anaerobes are observed in

1. Anoxic water layers
2. Stratified meromictic lakes
3. Brackish lagoons
4. All of the above

Options :

- 86435149737. 1
- 86435149738. 2
- 86435149739. 3
- 86435149740. 4

Question Number : 44 Question Id : 86435114743 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Pelodictyon, Chlorobium, Clathrochloris, Chlorobacterium and Chloropseudomonas are the common genera observed in

1. Green sulfur bacteria
2. Green non sulfur bacteria
3. Purple sulfur bacteria
4. Purple non sulfur bacteria

Options :

- 86435149741. 1
- 86435149742. 2
- 86435149743. 3
- 86435149744. 4

Question Number : 45 Question Id : 86435114744 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following generate sulphide by reducing sulphate?

1. *Desulfococcus*
2. *Desulfomonas*
3. *Desulfosarcina*
4. All of the above

Options :

- 86435149745. 1
- 86435149746. 2
- 86435149747. 3
- 86435149748. 4

Question Number : 46 Question Id : 86435114745 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Reverse electron flow is associated with

1. Reduction of NAD to NADH
2. Oxidation of NADH to NAD
3. Reduction of oxygen
4. All of the above

Options :

- 86435149749. 1
- 86435149750. 2
- 86435149751. 3
- 86435149752. 4

Question Number : 47 Question Id : 86435114746 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which is the group of bacteria having the ability to use single carbon (C₁) compounds such as methanol or methane or multi carbon compounds such as dimethyl ether and dimethylamine as the sole energy and carbon source for their growth?

1. Methylotrophs
2. Methanogens
3. Methanotrophs
4. All of the above

Options :

- 86435149753. 1
- 86435149754. 2
- 86435149755. 3
- 86435149756. 4

Question Number : 48 Question Id : 86435114747 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is correct match for the example for Type I and II methanotrophs with the specific pathway used for carbon fixation respectively?

1. Alphaproteobacteria; RuMP pathway and Gammoproteobacteria; serine pathway
2. Gammoproteobacteria; RuMP pathway and Alphaproteobacteria; serine pathway
3. Alphaproteobacteria; reverse TCA and Gammoproteobacteria; RuMP pathway
4. Gammoproteobacteria; reverse TCA cycle and Alphaproteobacteria; Serine pathway

Options :

- 86435149757. 1
- 86435149758. 2
- 86435149759. 3
- 86435149760. 4

Question Number : 49 Question Id : 86435114748 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is an extreme halophiles?

1. *Pseudomonas aeruginosa*
2. *Halobacterium salinarum*
3. *Bacillus hunanensis*
4. *Escherichia coli*

Options :

- 86435149761. 1
- 86435149762. 2
- 86435149763. 3
- 86435149764. 4

Question Number : 50 Question Id : 86435114749 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Due to lack of oxygen, which one of the following mechanisms is used by the halophiles to synthesize ATP?

1. Substrate level phosphorylation
2. Oxidative phosphorylation
3. Photophosphorylation
4. None of the above

Options :

- 86435149765. 1
- 86435149766. 2
- 86435149767. 3
- 86435149768. 4

Question Number : 51 Question Id : 86435114750 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Which of the following is used as osmolyte by halophiles?

1. Betaine and ectoine
2. Hydroxyectoine, glutamine
3. Sucrose and glycine betaine
4. All of the above

Options :

- 86435149769. 1
- 86435149770. 2
- 86435149771. 3
- 86435149772. 4

Question Number : 52 Question Id : 86435114751 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Lactobacillus produce which one of the following from glucose in the process of fermentation?

1. Palmitic acid
2. Acetic acid
3. Lactic acid
4. Citric acid

Options :

- 86435149773. 1
- 86435149774. 2
- 86435149775. 3
- 86435149776. 4

Question Number : 53 Question Id : 86435114752 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Propionibacterium is used in the production of

1. Cottage cheese
2. Swiss cheese
3. Blue cheese
4. Feta

Options :

86435149777. 1
86435149778. 2
86435149779. 3
86435149780. 4

Question Number : 54 Question Id : 86435114753 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In pentose phosphate pathway, the major products are

1. Ribulose and NADPH
2. Ribulose and FADH
3. Pyruvate and FAD+
4. Pyruvate and ATP

Options :

86435149781. 1
86435149782. 2
86435149783. 3
86435149784. 4

Question Number : 55 Question Id : 86435114754 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What does phosphogluconic acid yield after undergoing dehydration?

1. 6-Phosphoglucanolactone
2. 2-Keto-3-Deoxy-6-Phosphoglucanate
3. Glyceraldehyde 3 Phosphate
4. All of the above

Options :

- 86435149785. 1
- 86435149786. 2
- 86435149787. 3
- 86435149788. 4

Question Number : 56 Question Id : 86435114755 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is the allosteric inhibitor of glucose-6-phosphate dehydrogenase, the key regulatory enzyme in the pentose phosphate pathway?

1. NAD
2. NADPH/NADP ratio
3. FADH
4. None of the above

Options :

- 86435149789. 1
- 86435149790. 2
- 86435149791. 3
- 86435149792. 4

Question Number : 57 Question Id : 86435114756 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fill in the blank

TCA Cycle is a/an _____ pathway.

1. Assimilative
2. Anabolic
3. Amphibolic
4. None of the above

Options :

- 86435149793. 1
- 86435149794. 2
- 86435149795. 3
- 86435149796. 4

Question Number : 58 Question Id : 86435114757 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is the co-factor of pyruvate dehydrogenase complex?

1. Thiamine pyrophosphate
2. Lipoic acid
3. Flavin Adenine Dinucleotide
4. All of the above

Options :

- 86435149797. 1
- 86435149798. 2
- 86435149799. 3
- 86435149800. 4

Question Number : 59 Question Id : 86435114758 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following inhibitors binds between Fe-S protein and Ubiquinone?

1. Carbon monoxide
2. Barbiturates
3. Dimercaprol
4. Piericidin A

Options :

- 86435149801. 1
- 86435149802. 2
- 86435149803. 3
- 86435149804. 4

Question Number : 60 Question Id : 86435114759 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following is/are inhibitor(s) of the electron transport chain?

1. Rotenone
2. Rutamycin
3. Cyanide
4. All of the above

Options :

- 86435149805. 1
- 86435149806. 2
- 86435149807. 3
- 86435149808. 4

Question Number : 61 Question Id : 86435114760 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Chemiosmotic theory explains

1. Production of ATP
2. Production of reductant
3. Hydrolysis of water
4. None of the above

Options :

86435149809. 1

86435149810. 2

86435149811. 3

86435149812. 4

Question Number : 62 Question Id : 86435114761 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0

Match the **Column A** microorganisms with products formed in **Column B** using pyruvate

Column A	Column B
Microorganisms	Products
A. <i>Saccharomyces cerevisiae</i>	I. Lactic acid
B. <i>Streptococcus</i> and <i>Lactobacillus</i>	II. Butyric acid, acetone, isopropanol and butanol
C. <i>Clostridium</i>	III. CO ₂ and ethanol
D. <i>E. coli</i>	IV. Hydrogen, lactic acid, ethanol, acetic acid, carbon dioxide and formic acid

Choose the **correct** answer from the options given below:

1. A - I, B - II, C - IV, D - III
2. A - III, B - I, C - II, D - IV
3. A - III, B - II, C - I, D - IV
4. A - III, B - IV, C - II, D - I

Options :

86435149813. 1
 86435149814. 2
 86435149815. 3
 86435149816. 4

Question Number : 63 Question Id : 86435114762 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Alanine Transaminase is involved in transamination reaction resulting in the formation of

1. Pyruvate and α -ketoglutarate
2. α -ketoglutarate and L-glutamate
3. L-glutamate and pyruvate
4. None of the above

Options :

- 86435149817. 1
- 86435149818. 2
- 86435149819. 3
- 86435149820. 4

Question Number : 64 Question Id : 86435114763 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Oxford Dictionary defines alcohol as a "colorless volatile flammable liquid" that is produced by the natural fermentation of sugars and is the intoxicating constituent of wine, beer, spirits, and other drinks. This is also used as

1. Clean-burning fuel
2. Chemical in the form of antiseptic and disinfectant
3. Solvent in synthesis of organic compounds
4. All of the above

Options :

- 86435149821. 1
- 86435149822. 2
- 86435149823. 3
- 86435149824. 4

Question Number : 65 Question Id : 86435114764 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

During alcoholic fermentation a mole of glucose is converted into

1. Two moles of ethanol, two moles of Carbon dioxide and two moles of ATP
2. Two moles of ethanol and two moles of ATP
3. Two moles of ethanol, two moles of Carbon dioxide and four ATP
4. None of the above

Options :

- 86435149825. 1
- 86435149826. 2
- 86435149827. 3
- 86435149828. 4

Question Number : 66 Question Id : 86435114765 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Pyruvate decarboxylase converts pyruvate to

1. Ethanol and Carbon dioxide
2. Acetaldehyde and Carbon dioxide
3. Methanol and Carbon dioxide
4. None of the above

Options :

- 86435149829. 1
- 86435149830. 2
- 86435149831. 3
- 86435149832. 4

Question Number : 67 Question Id : 86435114766 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is a homofermentative lactic acid bacteria?

1. *Lactobacillus*
2. *Pediococcus*
3. *Enterococcus*
4. All of the above

Options :

- 86435149833. 1
- 86435149834. 2
- 86435149835. 3
- 86435149836. 4

Question Number : 68 Question Id : 86435114767 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Name the product obtained from dehydrogenation of one mole of glucose-6-phosphate in phosphoketolase pathway

1. Ribulose-5-phosphate
2. Xylulose-5-phosphate
3. 6-phosphogluconate
4. None of the above

Options :

- 86435149837. 1
- 86435149838. 2
- 86435149839. 3
- 86435149840. 4

Question Number : 69 Question Id : 86435114768 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following is the best example for branched fermentation pathway?

1. Acetate–butyrate fermentation
2. Ethanol fermentation
3. Homolactic fermentation
4. All of the above

Options :

- 86435149841. 1
- 86435149842. 2
- 86435149843. 3
- 86435149844. 4

Question Number : 70 Question Id : 86435114769 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Pyruvate is decarboxylated to acetaldehyde, which is used as the electron acceptor. Which of the following serves as a source of electron donor?

1. FADH
2. FADPH
3. NADH
4. NADPH

Options :

- 86435149845. 1
- 86435149846. 2
- 86435149847. 3
- 86435149848. 4

Question Number : 71 Question Id : 86435114770 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Phosphoroclastic reaction is catalysed by

1. Pyruvate dehydrogenase
2. Pyruvate ferredoxin oxidoreductase
3. Pyruvate decarboxylase
4. All of the above

Options :

- 86435149849. 1
- 86435149850. 2
- 86435149851. 3
- 86435149852. 4

Question Number : 72 Question Id : 86435114771 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Lactase is an enzyme that is involved in the hydrolysis of

1. β -1-4 glycosidic linkages
2. β -1-6 glycosidic linkages
3. α -1-6 glycosidic linkages
4. None of the above

Options :

- 86435149853. 1
- 86435149854. 2
- 86435149855. 3
- 86435149856. 4

Question Number : 73 Question Id : 86435114772 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Lactose intolerance is associated with

1. Celiac disease
2. Crohn disease
3. Enteropathies
4. All of the above

Options :

- 86435149857. 1
- 86435149858. 2
- 86435149859. 3
- 86435149860. 4

Question Number : 74 Question Id : 86435114773 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The sugar D-(β)-maltose is a glucoside consisting of

1. Two glucose monomers
2. Two galactose monomers
3. One glucose and one galactose monomer
4. None of the above

Options :

- 86435149861. 1
- 86435149862. 2
- 86435149863. 3
- 86435149864. 4

Question Number : 75 Question Id : 86435114774 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which among the following are sugar alcohols?

1. Polyhydric alcohols
2. Polyalcohols
3. Alditols or glycitols
4. All of the above

Options :

- 86435149865. 1
- 86435149866. 2
- 86435149867. 3
- 86435149868. 4

Question Number : 76 Question Id : 86435114775 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which sugar among the following is often used as a sweetener in diabetic food whose calorific value is expected to be low, as it is poorly absorbed from the intestine?

1. Glucose
2. Fructose
3. Mannitol
4. None of the above

Options :

- 86435149869. 1
- 86435149870. 2
- 86435149871. 3
- 86435149872. 4

Question Number : 77 Question Id : 86435114776 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Cellulose is a polysaccharide carbohydrate composed of a long linear chain of

1. Galactose
2. Fructose
3. Glucose
4. All of the above

Options :

- 86435149873. 1
- 86435149874. 2
- 86435149875. 3
- 86435149876. 4

Question Number : 78 Question Id : 86435114777 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following sugars contain the backbone chain glucose residues linked together through α -1-4 glycosidic linkages and the branched chain glucose residues are linked together through α -1-6 glycosidic linkages?

1. Starch
2. Cellulose
3. Cellobiose
4. All of the above

Options :

- 86435149877. 1
- 86435149878. 2
- 86435149879. 3
- 86435149880. 4

Question Number : 79 Question Id : 86435114778 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In humans, glycogen is stored in

1. Liver
2. Kidneys
3. Skeletal muscle
4. All of the above

Options :

- 86435149881. 1
- 86435149882. 2
- 86435149883. 3
- 86435149884. 4

Question Number : 80 Question Id : 86435114779 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which generation of biofuel production involves metabolic engineering of microorganisms as synthetic living factories and designer microorganisms?

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

Options :

- 86435149885. 1
- 86435149886. 2
- 86435149887. 3
- 86435149888. 4

Question Number : 81 Question Id : 86435114780 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

During pre-treatment, which process is involved in reducing the size of lignocellulosic material?

1. Physical
2. Chemical
3. Biological
4. All of the above

Options :

- 86435149889. 1
- 86435149890. 2
- 86435149891. 3
- 86435149892. 4

Question Number : 82 Question Id : 86435114781 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Peroxidase and laccase enzymes oxidize the following substrate

1. Glucose
2. Lignin
3. Glycogen
4. None of the above

Options :

- 86435149893. 1
- 86435149894. 2
- 86435149895. 3
- 86435149896. 4

Question Number : 83 Question Id : 86435114782 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following methods is used in nitrogen fixation in industries?

1. Haber-Bosch process
2. Lightning
3. Biological nitrogen fixation
4. None of the above

Options :

- 86435149897. 1
- 86435149898. 2
- 86435149899. 3
- 86435149900. 4

Question Number : 84 Question Id : 86435114783 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

In which reaction do anaerobic chemolithotrophs use ammonium ion (NH_4^+) as an electron donor and directly convert it into molecular nitrogen (N_2)?

1. Anammox reaction
2. Redox reaction
3. Ammonification
4. None of the above

Options :

- 86435149901. 1
- 86435149902. 2
- 86435149903. 3
- 86435149904. 4

Question Number : 85 Question Id : 86435114784 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which water fern is in symbiosis with cyanobacteria such as *Anabaena*?

1. Duck weed
2. Azolla
3. Water lettuce
4. Salvinia

Options :

- 86435149905. 1
- 86435149906. 2
- 86435149907. 3
- 86435149908. 4

Question Number : 86 Question Id : 86435114785 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Actively dividing rhizobia in leguminous roots are called

1. Peribacteroid
2. Bacteriocin
3. Endosymbiont
4. Bacteroid

Options :

- 86435149909. 1
- 86435149910. 2
- 86435149911. 3
- 86435149912. 4

Question Number : 87 Question Id : 86435114786 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which form of carbon source is supplied to bacteroids in symbiosis?

1. Ketones
2. Aldehydes
3. Carboxylic acids
4. All of the above

Options :

- 86435149913. 1
- 86435149914. 2
- 86435149915. 3
- 86435149916. 4

Question Number : 88 Question Id : 86435114787 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following is NOT an aromatic amino acid?

1. Phenylalanine
2. Tyrosine
3. Tryptophan
4. Leucine

Options :

- 86435149917. 1
- 86435149918. 2
- 86435149919. 3
- 86435149920. 4

Question Number : 89 Question Id : 86435114788 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which amino acid acts as the precursor of nucleotide biosynthesis?

1. Aspartate
2. Glycine
3. Glutamine
4. All of the above

Options :

- 86435149921. 1
- 86435149922. 2
- 86435149923. 3
- 86435149924. 4

Question Number : 90 Question Id : 86435114789 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following does not belong to α -ketoglutarate family?

1. Threonine
2. Glutamine
3. Proline
4. Arginine

Options :

- 86435149925. 1
- 86435149926. 2
- 86435149927. 3
- 86435149928. 4

Question Number : 91 Question Id : 86435114790 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

What does tryptophan pyrrolase do?

1. Cleaves the indole ring of tryptophan
2. Hydrolases the tryptophan
3. Reduces the indole ring of tryptophan
4. All of the above

Options :

- 86435149929. 1
- 86435149930. 2
- 86435149931. 3
- 86435149932. 4

Question Number : 92 Question Id : 86435114791 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which one of the following processes does NOT occur in phenylketonuria?

1. Formation of urea
2. Conversion of tyrosine to phenylalanine
3. Conversion phenylalanine to tyrosine
4. None of the above

Options :

- 86435149933. 1
- 86435149934. 2
- 86435149935. 3
- 86435149936. 4

Question Number : 93 Question Id : 86435114792 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which statement is NOT true with reference to Reactive Oxygen Species (ROS)?

1. They are produced during electron transport chain associated with oxygen as an electron acceptor.
2. ROS plays an important role in cell signalling.
3. Exposure to ionizing radiations such as X-rays, Gamma rays will lead to production of ROS.
4. It is not an intra and intercellular messenger.

Options :

- 86435149937. 1
- 86435149938. 2
- 86435149939. 3
- 86435149940. 4

Question Number : 94 Question Id : 86435114793 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Fenton reaction generates

1. Hydroxyl ions
2. Peroxynitrites
3. Superoxide
4. All of the above

Options :

- 86435149941. 1
- 86435149942. 2
- 86435149943. 3
- 86435149944. 4

Question Number : 95 Question Id : 86435114794 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Decimal Reduction Time is performed to assess

1. Effect of temperature on microbial growth
2. Effect of salt on microbial growth
3. Effect of solute on microbial growth
4. None of the above

Options :

- 86435149945. 1
- 86435149946. 2
- 86435149947. 3
- 86435149948. 4

Question Number : 96 Question Id : 86435114795 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

rpoH locus is responsible for synthesis of sigma factor with a molecular weight of

1. 28 kDa
2. 70 kDa
3. 32 kDa
4. 54 kDa

Options :

- 86435149949. 1
- 86435149950. 2
- 86435149951. 3
- 86435149952. 4

Question Number : 97 Question Id : 86435114796 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

The core enzyme of the RNA polymerase in prokaryote comprises

1. $\alpha\beta\beta'$
2. $\alpha\beta\beta'\sigma$
3. $\alpha_2\beta\beta'\rho$
4. $\alpha\alpha\beta\beta'$

Options :

- 86435149953. 1
- 86435149954. 2
- 86435149955. 3
- 86435149956. 4

Question Number : 98 Question Id : 86435114797 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Long term starvation of the microbial cells leads to accumulation of ppGpp, which stands for

1. Guanosine 3',5'-bisphosphate
2. Guanosine 3' tetraphosphate
3. Guanosine 5' tetraphosphate
4. All of the above

Options :

- 86435149957. 1
- 86435149958. 2
- 86435149959. 3
- 86435149960. 4

Question Number : 99 Question Id : 86435114798 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

Which of the following statement(s) is correct with reference to starvation stress?

1. Amount and types of lipid are altered in the inner membrane
2. Cells become smaller
3. Number of ribosomes are reduced
4. All of the above

Options :

- 86435149961. 1
- 86435149962. 2
- 86435149963. 3
- 86435149964. 4

Question Number : 100 Question Id : 86435114799 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No Correct Marks : 1 Wrong Marks : 0

E. coli uses different pathways for aerobic and anaerobic electron flow. In aerobic conditions, they are known to activate two distinct operons coding for cytochrome which are

1. Nar L and Nar P
2. Cyo and Cyd
3. Dms and frd
4. None of the above

Options :

- 86435149965. 1
- 86435149966. 2
- 86435149967. 3
- 86435149968. 4