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Questions and answers of the online test conducted on 28/03/2015

In the incubation mixture for protoplast isolation, the mannitol supplied functions primarily as

Select one:

- ☐ a. Source of energy
- ☐ b. Buffer
- ☐ c. Osmotic stabilizer
- ☐ d. N-source

The correct answer is: Osmotic stabilizer

Hardness of water is mainly due to the occurrence of

Select one:

- ☐ a. Na^+
- ☐ b. Ca and Mg ions
- ☐ c. H_2SO_4
- ☐ d. Cl^- and SO_4 ions

The correct answer is: Ca and Mg ions

Bacterial lipopolysaccharide is characterised by

Select one:

- ☐ a. Glycolipids
- ☐ b. Ketodeoxyoctulonate
- ☐ c. Phospholipids
- ☐ d. Ribitol teichoic acid

The correct answer is: Ketodeoxyoctulonate

- ☐ a. X-inactivation centre
- ☐ b. Cassette mechanism
- ☐ c. Dosage compensation
- ☐ d. Epigenetic change

The correct answer is: Epigenetic change

70% alcohol is used in DNA isolation to

Select one:

- ☐ a. Precipitate DNA
- ☐ b. Precipitate protein
- ☐ c. Removes salt
- ☐ d. Removes lipid

The correct answer is: Removes salt

A technology which is useful for identifying and quantifying different metabolites in a cell is

Select one:

- ☐ a. GC-MS
- ☐ b. Sanger method
- ☐ c. SAGE
- ☐ d. Structural genomics

The correct answer is: GC-MS

The second phase in meiosis (Meiosis-II) leads to

Select one:

- ☐ a. Fresh DNA synthesis
- ☐ b. Separation of chromatids and centromeres
- ☐ c. Separation of sex chromosomes
- ☐ d. Separation of homologous chromosomes

The correct answer is: Separation of homologous chromosomes

blood sample has

Select one:

- ☐ a. 5.29 times lower $[H^+]$ than the gastric juice
- ☐ b. 6 times lower $[H^+]$ than the gastric juice
- ☐ c. 6000 times lower $[H^+]$ than the gastric juice
- ☐ d. a million times lower $[H^+]$ than the gastric juice

The correct answer is: a million times lower $[H^+]$ than the gastric juice

The genome size in *Saccharomyces cerevisiae* is

Select one:

- ☐ a. 14×10^6 bp
- ☐ b. 3×10^8 bp
- ☐ c. 1×10^8 bp
- ☐ d. 1.25×10^8 bp

The correct answer is: 14×10^6 bp

The smallest genome among the following organisms is

Select one:

- ☐ a. *Mycoplasma genitalium*
- ☐ b. *Bacillus subtilis*
- ☐ c. *Methanococcus jannaschii*
- ☐ d. *E. coli*

The correct answer is: *Mycoplasma genitalium*

The cloning vector pBS161-1 naturally occurs in

Select one:

- ☐ a. *Bacillus subtilis*
- ☐ b. *E. coli*
- ☐ c. Derivative of pBR 322
- ☐ d. *Pseudomonas putida*

The correct answer is: *Bacillus subtilis*

Shine Delgarno sequence is found in

Select one:

- ☐ a. Eukaryotic rRNA
- ☐ b. Prokaryotic mRNA
- ☐ c. Eukaryotic tRNA
- ☐ d. Prokaryotic tRNA

The correct answer is: Prokaryotic mRNA

The single letter code 'Y' used in bioinformatics data stands for

Select one:

- ☐ a. Purine
- ☐ b. Pyrimidine
- ☐ c. Keto
- ☐ d. Amino

The correct answer is: Pyrimidine

Griffith explained transformation principle after his experiments using

Select one:

- ☐ a. *E.coli*
- ☐ b. *Neurospora*
- ☐ c. *Streptomyces*
- ☐ d. Pneumonia causing bacterium

The correct answer is: Pneumonia causing bacterium

Tissue plasminogen activator is used for

Select one:

- ☐ a. Maintaining turgor pressure
- ☐ b. Dissolving blood clots
- ☐ c. Clearing turbidity of juices
- ☐ d. Regulating osmotic potential

The correct answer is: Dissolving blood clots

The sum of super helical turns and double helical turns in DNA is referred to as

Select one:

- ☐ a. Twisting number
- ☐ b. Linking number
- ☐ c. Writhing number
- ☐ d. Helical number

The correct answer is: Linking number

The specificity factor of APC in the degradation of securin

Select one:

- ☐ a. Cdc 20
- ☐ b. Cdh 1
- ☐ c. Cdc1
- ☐ d. Cdc 15

The correct answer is: Cdc 20

In flow cytometry, each peak in histogram represents

Select one:

- ☐ a. Probe labeled with flurochrome
- ☐ b. Chromosome labeled with quinacrine
- ☐ c. Single or group of chromosome of same size
- ☐ d. Length of chromosomal arms

The correct answer is: Single or group of chromosome of same size

Which one of the following represents palindrome sequence for *Eco* RI?

Select one:

- ☐ a. - CGCTATATGCAACG -
- GCGATATACGTTGC
- ☐ b. - CGCTATTCACCA -
- GCGATAAGTGGT -
- ☐ c. - AACCTTATAC -

- ☐ d. - ATTAGAATTCCG -
- TAATCTTAAGGC -

The correct answer is: - ATTAGAATTCCG -
- TAATCTTAAGGC -

Which of the following molecule have two rings in their structure?

Select one:

- ☐ a. Purine
☐ b. Pyrimidine
☐ c. Polysaccharide
☐ d. Pyrrole

The correct answer is: Purine

Mitomycin is a

Select one:

- ☐ a. Aflotoxin
☐ b. Bioengineered protein
☐ c. Biochip
☐ d. Immobilized enzyme

The correct answer is: Aflotoxin

The proteins are denaturated and have a negative charge with a uniform charge to mass ratio, when treated with

Select one:

- ☐ a. TMED
☐ b. SDS
☐ c. PAGE
☐ d. Polygalacturanse

The correct answer is: SDS

The amino acid obtained from kelp which is often used as a flavour enhancer is

Select one:

- ☐ a. L-Lysine
- ☐ b. L-glycine
- ☐ c. L-Glutamate
- ☐ d. D/L-Methionine

The correct answer is: L-Glutamate

Which of the following acts as aseptic working table for inoculation of animal cells?

Select one:

- ☐ a. LAF
- ☐ b. 70% ethanol
- ☐ c. CO2 incubator
- ☐ d. Culture room

The correct answer is: LAF

The tyrosine tRNA precursor prepared from *E.coli* has

Select one:

- ☐ a. 126 nucleotide
- ☐ b. 51 nucleotide
- ☐ c. 207 nucleotide
- ☐ d. 162 nucleotide

The correct answer is: 126 nucleotide

The change in adenosine to inosine editing can result in a protein with altered amino acid sequence. This editing is carried out by

Select one:

- ☐ a. ADARs
- ☐ b. ADA
- ☐ c. uORFs
- ☐ d. IRES

The correct answer is: ADARs

The yeast *Saccharomyces cerevisiae* has

- ☐ b. 13 chromosomes
- ☐ c. 15 chromosomes
- ☐ d. 16 chromosomes

The correct answer is: 17 chromosomes

New genes are generated from

Select one:

- ☐ a. Pre existing genes
- ☐ b. Gene mutations only
- ☐ c. Disjunction
- ☐ d. Non disjunction

The correct answer is: Pre existing genes

The secondary structure of a protein can be predicted by

Select one:

- ☐ a. Western blot
- ☐ b. Ramachandran plot
- ☐ c. ELISA
- ☐ d. Haldane equation

The correct answer is: Ramachandran plot

Picornaviridae are

Select one:

- ☐ a. Viruses composed of single stranded (+) type RNA
- ☐ b. Viruses composed of single stranded (-) type RNA
- ☐ c. Viruses composed of single stranded DNA
- ☐ d. Viruses composed of double stranded RNA

The correct answer is: Viruses composed of single stranded (+) type RNA

More than 97% of the human gene is non-functional. This knowledge

a. Bioinformatics

- ☐ b. HGP
- ☐ c. ELISA
- ☐ d. Widal test

The correct answer is: HGP

Homeobox is composed of

Select one:

- ☐ a. 100 nucleotide sequences
- ☐ b. 180 nucleotide sequences
- ☐ c. 200 nucleotide sequences
- ☐ d. 60 nucleotide sequences

The correct answer is: 180 nucleotide sequences

Lycopene is the pigment mainly responsible for the color of

Select one:

- ☐ a. Papaya
- ☐ b. Carrot
- ☐ c. Tomato
- ☐ d. Mango

The correct answer is: Tomato

Black rots in eggs is caused by

Select one:

- ☐ a. *Pseudomonas*
- ☐ b. *Proteus*
- ☐ c. *Acetobacter*
- ☐ d. *Alcaligenes*

The correct answer is: *Proteus*

In animal cell tissue palladium deposited on agarose was used as a substrate for growth of

Select one:

- ☐ a. Amniotic cells
- ☐ b. RBC
- ☐ c. Fibroblast
- ☐ d. None

The correct answer is: Fibroblast

The first nucleotide of RNA exists as

Select one:

- ☐ a. Monophosphate
- ☐ b. Diphosphate
- ☐ c. Triphosphate
- ☐ d. None of these

The correct answer is: Triphosphate

Which of the following responsible for procreation of estrogen and ovulation?

Select one:

- ☐ a. Lutenizing hormone
- ☐ b. Follicle stimulating hormone
- ☐ c. Both LH and FSH
- ☐ d. Prost

The correct answer is: Both LH and FSH

The double helical structure of DNA was published in nature under the title

Select one:

- ☐ a. Molecular structure of DNA
- ☐ b. Molecular structure of nucelic acids
- ☐ c. The double helical DNA
- ☐ d. DNA-The double helix

Select one:

- ☐ a. Fibroblast
- ☐ b. T-cells
- ☐ c. Nasal epithelium
- ☐ d. Myoblasts

The correct answer is: Fibroblast

Which of the following mineral element facilitates insulin bindings to cell receptor site?

Select one:

- ☐ a. Zinc
- ☐ b. Chromium
- ☐ c. Copper
- ☐ d. Selenium

The correct answer is: Chromium

Vermiculaite is aluminosilicate soil clay belonging to the type

Select one:

- ☐ a. 1:1
- ☐ b. 2:1
- ☐ c. 2:2
- ☐ d. 2:1:1

The correct answer is: 2:1

DNA finger printing is a modified

Select one:

- ☐ a. RFLP
- ☐ b. PCR
- ☐ c. RAPD
- ☐ d. AFLP

Select one:

- ☐ a. Phenylethylamine
- ☐ b. Phenoxyacetic acid
- ☐ c. Benzoic acid
- ☐ d. Penicillanic acid

The correct answer is: Phenylethylamine

The nitrogen base in nuclei acid which does not contain a keto group is

Select one:

- ☐ a. Guanine and thymine
- ☐ b. Guanine and adenine
- ☐ c. Thymine and cytosine
- ☐ d. Adenine

The correct answer is: Adenine

One meiosis in pollen mother cell and one meiosis in megaspore mother cell will contribute gametes for one seed formation in a *Polygonum* type (typical) angiosperm plants. How much meiosis should take place for the production of 100 pollen grains and 100 embryo sacs which leads to production of 100 seeds?

Select one:

- ☐ a. 100
- ☐ b. 125
- ☐ c. 200
- ☐ d. 250

The correct answer is: 125

The bioproduct used for acute myocardial infraction which is obtained from animal cell culture is

Select one:

- ☐ c. Urokinase type plasminogen activator
- ☐ d. Somatropin

The correct answer is: Urokinase type plasminogen activator

Agrobacterium tumefaciens naturally occurs in

Select one:

- ☐ a. Capillary water
- ☐ b. Root branching portions
- ☐ c. Root stem transition zone
- ☐ d. Soil

The correct answer is: Soil

Diabetic person, upon starvation, accumulates

Select one:

- ☐ a. Ketone bodies
- ☐ b. Global Alignment
- ☐ c. Glycogen
- ☐ d. Water

The correct answer is: Ketone bodies

Agar is a complex material formed by

Select one:

- ☐ a. Polymer of glucose and sulphur containing pectins
- ☐ b. Polymer of galactose and sulphur containing amino acids
- ☐ c. Polymer of galactose and sulphur containing carbohydrates
- ☐ d. Both a and c

The correct answer is: Polymer of galactose and sulphur containing carbohydrates

The repeating sequence in the telomeric region of human DNA is

Select one:

a. TTAGGG

☐ b. TTGGGG

☐ c. TTTTGG

☐ d. GGGTTT

The correct answer is: TTAGGG

Insulin is made up of

Select one:

☐ a. Glucose and fructose

☐ b.
Two polypeptide chains

☐ c.
Fructose

☐ d.
N-acetyl glucosamine

The correct answer is:
Fructose

Allopurinol is used in the treatment of

Select one:

☐ a. Gout

☐ b. Hemophilia

☐ c. Cystic fibrosis

☐ d. Muscular dystrophy

The correct answer is: Gout

Somatostatin is a

Select one:

☐ a. Globular protein

☐ b. 51 residue hormone

☐ c. 30 amino acid long neuropeptide

☐ d. 14 residue polypeptide hormone

The correct answer is: 14 residue polypeptide hormone

Which of the following is not true for CDKs (Cyclin-dependent kinase)?

Select one:

- ☐ a. They are relatively large protein which ranges from 3400-4000kDA
- ☐ b. Regulates cell cycle
- ☐ c. Regulates transcription
- ☐ d. Regulate mRNA processing

The correct answer is: They are relatively large protein which ranges from 3400-4000kDA

The physical expression of genetic information in an organism is called its

Select one:

- ☐ a. Phenotype
- ☐ b. Trait indicator
- ☐ c. Genotype
- ☐ d. Protein display

The correct answer is: Phenotype

If a DNA strand contains 2000 base pairs, how many spirals would occur in each strand?

Select one:

- ☐ a. 20
- ☐ b. 200
- ☐ c. 2000
- ☐ d. 400

The correct answer is: 200

The mode of replication in mitochondrial DNA

Select one:

- ☐ a. Rolling circle replication
- ☐ b. D-Loop replication
- ☐ c. Theta replication
- ☐ d. Unidirectional replication

The correct answer is: D-Loop replication

Physical map of restriction sites within a gene located normally on a chromosome can be provided by

Select one:

- ☐ a. Southern blot
- ☐ b. Northern blot
- ☐ c. Western blot
- ☐ d. Any of these

The correct answer is: Southern blot

The relationship between affinity of the enzyme for its substrate is

Select one:

- ☐ a. Inversely proportional to feedback ability
- ☐ b. Inversely proportional to catalytic activity
- ☐ c. Enzyme and its substrate are usually strangers to each other
- ☐ d. Directly proportional to catalytic activity

The correct answer is: Directly proportional to catalytic activity

The transposons known as P elements are found in

Select one:

- ☐ a. *Dracaena*
- ☐ b. *Drosera*
- ☐ c. *Drosophila*
- ☐ d. *Drynaria*

The correct answer is: *Drosophila*

The flavour of garlic is stored in

Select one:

- ☐ a. Peroxisomes
- ☐ b. Cytosol
- ☐ c. Vacuole
- ☐ d. Intercellular space

-
- ☐ a. 2
 - ☐ b. 3
 - ☐ c. 5
 - ☐ d. 6

The correct answer is: 5

A patient with azoospermia has

Select one:

- ☐ a. High amount of non-motile sperms
- ☐ b. Medium number of motile sperms
- ☐ c. High number of motile sperms
- ☐ d. High to moderate number of motile sperm

The correct answer is: High amount of non-motile sperms

The molecular scissors present in many types of bacteria are

Select one:

- ☐ a. DNA polymerase
- ☐ b. Plasmid
- ☐ c. Episomes
- ☐ d. Restriction enzyme

The correct answer is: Restriction enzyme

Which of the following tolerates higher ethanol concentration during fermentation?

Select one:

- ☐ a. *Sacchromyces cereviseae*
- ☐ b. *Zymomonas spp.*
- ☐ c. *E.coli*
- ☐ d. TMV

The correct answer is: *Zymomonas spp.*

Coir pith waste is degraded by

Select one:

- ☐ a. *Bacillus*
- ☐ b. *Pleurotus sajor-caju*
- ☐ c. *E.coli*
- ☐ d. *Salmonella*

The correct answer is: *Pleurotus sajor-caju*

Lysine incorporated as animal feed additive is produced industrially by

Select one:

- ☐ a. *Brevibacterium spp.*
- ☐ b. *Micrococcus glutamicus*
- ☐ c. *Bacillus subtilis*
- ☐ d. *Geobacillus suboxydans*

The correct answer is: *Micrococcus glutamicus*

Which of the following is a non-radioactive approach for labelling the nucleic acids to be used as DNA probe?

Select one:

- ☐ a. Nick translation
- ☐ b. Biotin-streptavidin labelling system
- ☐ c. Probes developed by PCR
- ☐ d. Dot blot technique

The correct answer is: Biotin-streptavidin labelling system

Galactose intolerance is due to lack of the enzyme

Select one:

- ☐ a. Fructokinase
- ☐ b. Aldolase
- ☐ c. Transferase
- ☐ d. Lactase

The correct answer is: Transferase

Chemiosmosis is accomplished in the presence of

Select one:

- ☐ a. PEP kinase
- ☐ b. Citrate synthase
- ☐ c. ATP synthase
- ☐ d. PEP carboxylase

The correct answer is: ATP synthase

Which of the following is not a bioethics concern in animal genetic engineering?

Select one:

- ☐ a. Concerns about escape of transgene
- ☐ b. Concerns about risk for escape of retroviruses
- ☐ c. Concern in over production of recombinant
- ☐ d. Concerns in xenotransplantation

The correct answer is: Concern in over production of recombinant

Which of the following can be called as a protective protein?

Select one:

- ☐ a. Immunoglobulin
- ☐ b. Collagen
- ☐ c. Tubulin
- ☐ d. Insulin

The correct answer is: Immunoglobulin

The greatest biochemical diversity is seen among

Select one:

- ☐ a. Plasmids
- ☐ b. Bacteria
- ☐ c. Bacteriophages
- ☐ d. Humans

The correct answer is: Bacteria

The integrated information database retrieval system of NCBI is called?

Select one:

- ☐ a. MGD
- ☐ b. EMBL
- ☐ c. ENTREZ
- ☐ d. OMIM

The correct answer is: ENTREZ

This virus has RNA dependent DNA polymerase as part of its genome

Select one:

- ☐ a. Influenza virus
- ☐ b. Herpes virus
- ☐ c. Cauliflower mosaic virus
- ☐ d. Papilloma virus

The correct answer is: Influenza virus

The rheological property of the medium grown with *Aspergillus oryzae* after 5 days is

Select one:

- ☐ a. Newtonian
- ☐ b. Pseudoplastic
- ☐ c. Casson plastic
- ☐ d. Bingham plastic

Cytochromes are

Select one:

- ☐ a. Riboflavin nucleotides
- ☐ b. Pyrimidine nucleotides
- ☐ c. Iron porphyrin proteins
- ☐ d. Flavoproteins

The correct answer is: Iron porphyrin proteins

Shrink resistance to wool is imparted by Kylan, which is a derivative of

Select one:

- ☐ a. collagen
- ☐ b. chitin
- ☐ c. gelatin
- ☐ d. phycocolloids

The correct answer is: chitin

Which of the following is considered as a secondary metabolite?

Select one:

- ☐ a. Vitamin B₁₂
- ☐ b. Citric acid
- ☐ c. Ethanol from yeast
- ☐ d. Mycotoxin

The correct answer is: Ethanol from yeast

Two strands of DNA double helix coil

Select one:

- ☐ a. Around each other
- ☐ b. Around a common axis
- ☐ c. At right angles to each other
- ☐ d. Around separate axes

The correct answer is: Around a common axis

In 70S ribosome, 'S' is indirectly a measure of

Select one:

- ☐ a. Binding action
- ☐ b. Capacity for protein synthesis
- ☐ c. Density and size
- ☐ d. Density and attachment pattern

The correct answer is: Density and size

The prosthetic group in carbonic anhydrase is

Select one:

- ☐ a. Iron
- ☐ b. Zinc
- ☐ c. Nickel
- ☐ d. Molybdenum

The correct answer is: Zinc

Which of the following group to which caffeine is classified?

Select one:

- ☐ a. Purine
- ☐ b. Pyrimides
- ☐ c. Hydrocarbons
- ☐ d. Complex polysaccharides

The correct answer is: Purine

In sickle-cell anaemia, the infected person shows

Select one:

- ☐ a. Altered α chain of haemoglobin
- ☐ b. Altered β chain of haemoglobin
- ☐ c. Altered α and β chain of haemoglobin
- ☐ d. Unpredictable changes in haemoglobin

The correct answer is: Altered β chain of haemoglobin

An antibiotic that inhibits cell wall synthesis is

Select one:

- ☐ a. Streptomycin
- ☐ b. Tetracycline
- ☐ c. Ampicillin
- ☐ d. Chloramphenicol

The correct answer is: Ampicillin

According to Michaleis-Menten equation which of the following is correct

Select one:

- ☐ a.
$$V_0 = \frac{V_{\max}[s]}{K_m + [s]}$$
- ☐ b.
$$V_{\max} = \frac{K_m + [s]}{V_0}$$
- ☐ c.
$$K_m = \frac{V_0}{[s]}$$
- ☐ d.
$$V_0 = K_m + [s]$$

Edit question

The correct answer is:

$$V_0 = \frac{V_{\max}[s]}{K_m + [s]}$$

Half-life period of ^{32}P is

Select one:

- ☐ a. 32 hours
- ☐ b. 32 days
- ☐ c. 89 days
- ☐ d. 89 weeks

The correct answer is: 32 days

Freshness of meat can be biosensed using the enzyme

Select one:

- ☐ a. Uricase
- ☐ b. Cholesterol oxidase
- ☐ c. Monoamine oxidase
- ☐ d. Glucose oxidase

The correct answer is: Monoamine oxidase

An endonuclease from *Aspergillus oryzae* that cleaves single C stranded RNA or DNA but does not cut double stranded nucleic acids is

Select one:

- ☐ a. Nuclease AO
- ☐ b. Nuclease H
- ☐ c. S1 Nuclease
- ☐ d. Nuclease H

The correct answer is: S1 Nuclease

The type of electrophoresis involving the combination of gel electrophoresis with DNA denaturation that allows separation of DNA molecules differing in sequence by only a single base is

Select one:

- ☐ a. PAGE
- ☐ b. DGGE
- ☐ c. SDS PAGE
- ☐ d. CGE

The correct answer is: DGGE