



BIOLOGY

BOOKS - SARAS PUBLICATION

BIOTECHNOLOGY AND ITS APPLICATIONS

Example

1. Among the human ancestors the brain size was more than 1000CC in :

A. Homo habilis

B. Homo neanderthalensis

C. Homo erectus

D. Ramapithecus

Answer:



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2. “Foolish Seedling” disease of rice led to the discovery of:

A. IAA

B. GA

C. ABA

D. 2,4 -D

Answer:



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3. If you suspect major deficiency of antibodies in a person to which of the following would you look for confirmatory evidence?

A. Haemocytes

B. Serum albumins

C. Serum globulins

D. Fibrinogen in the plasma

Answer:



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4. A person who is on a long hunger strike and is surviving only on water, will have_____

- A. less urea in his urine
- B. more sodium in his urine
- C. less amino acids in his urine
- D. more glucose in his blood

Answer:



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5. A sequential expression of a set of human genes occurs when a steroid molecule binds to the

A. Ribosome

B. Transfer RNA

C. Messenger RNA

D. DNA sequence

Answer:



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6. In a hexaploid wheat ($2n=6x=42$) the haploid (n) and the basic (x) number of chromosomes respectively are:-

A. $n=21$ and $x=7$

B. $n=7$ and $x=21$

C. $n=21$ and $x=21$

D. $n=21$ and $x=14$

Answer:



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7. Telomere repetitive DNA sequences control the function of eukaryote chromosomes because they :

- A. prevent chromosome loss
- B. act as replicons
- C. are RNA transcription initiator
- D. help chromosome pairing

Answer:



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8. Inheritance of skin colour in humans is example of

A. co-dominance

B. chromosomal aberration

C. point mutation

D. polygenic inheritance

Answer:



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9. A common test to find the genotype of a hybrid is by

A. crossing of one F_1 progeny with male parent

B. crossing of one F_2 progeny with male parent

C. crossing of one F_2 progeny with female parent

D. studying the sexual. behaviour of F_1 progenies

Answer:



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10. Probiotics are

A. Live microbial food supplement.

B. Safe antibiotics

C. Cancer inducing microbes

D. New kind of food allergens

Answer:



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11. A human male produces sperms with the genotype AB, Ab, aB, and ab pertaining to two diallelic characters in equal proportions . what is the corresponding genotype of this person

A. AABB

B. AaBb

C. AaBB

D. AABb

Answer:



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12. Gel electrophoresis is used for

A. Cutting of DNA into fragments

B. Separation of DNA fragments according to their size

C. Construction of recombinant DNA by joining with cloning vectors

D. Isolation of DNA molecule

Answer:





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13. A transgenic food crop which may help in solving the problem of night blindness in developing countries is :

A. Flavr Savr tomatoes

B. Starlink maize

C. Bt Soybean

D. Golden rice

Answer:



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14. During the propagation of a nerve impulse, the action potential results from the movement of :

A. K^+ ions from extracellular fluid to intracellular fluid

B. Na^+ ions from intracellular fluid to extracellular fluid

C. K^+ ions from intracellular fluid to extracellular fluid

D. Na^+ ions from extracellular fluid to intracellular fluid

Answer:



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15. To which type of barriers under innate immunity, to the saliva in the mouth and the tears from the eyes, belong?

A. Cytokine barriers

B. barriers

C. Physiological barriers

D. Physical barriers

Answer:



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16. What is antisense technology?

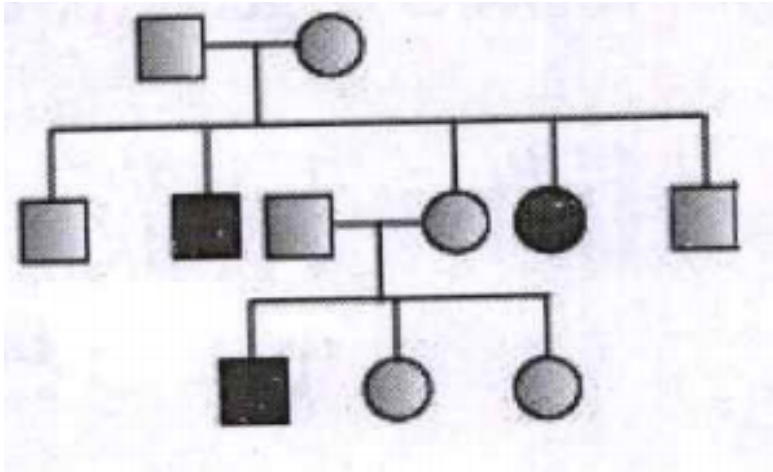
- A. A cell displaying a foreign antigen used for synthesis of antigens
- B. Production of somaclonal variants in tissue cultures
- C. When a piece of RNA that is complementary in sequence is used to stop expression of a specific gene
- D. RNA polymerase producing DNA

Answer:



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17. Study the pedigree chart given below



What

does it show?

A. Inheritance of a condition like phenylketonuria as an autosomal recessive trait

B. The pedigree chart is wrong as this is not possible

C. Inheritance of a recessive sex-linked disease like haemophilia

D. Inheritance of a sex linked inborn error of metabolism like phenylketonuria

Answer:



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18. One of the synthetic auxin is

A. JAA

B. GA

C. IBA

D. NAA

Answer:



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19. Sickle cell anemia is:

A. caused by substitution of valine by glutamic acid in the beta globin chain of haemoglobin

B. caused by a change in a single base pair of DNA

C. characterized by elongated sickle like RBCs with a nucleus

D. an autosomal linked dominant trait

Answer:



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20. What is not true for genetic code?

A. It is nearly universal

B. It is degenerate

C. It is unambiguous

D. A codon in mRNA is read in a non -
contiguous fashion

Answer:



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21. Phylogenetic system of classification is based on

A. Morphological features

B. Chemical constituents

C. Floral characters

D. Evolutionary relationships

Answer:



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22. Which of the following is not used as a biopesticide?

- A. *Trichodenna harzianum*
- B. Nuclear Polyhedrosis Virus (NPV)
- C. *Xanthomonas campestris*
- D. *Bacillus thuringiensis*

Answer:



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23. Somaclones are obtained by

- A. Plant breeding
- B. Irradiation
- C. Genetic engineering
- D. Tissue culture

Answer:



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24. Transgenic plants are the ones:

- A. generated by introducing foreign DNA into a cell and regenerating a plant from that cell
- B. produced after protoplast fusion in artificial medium
- C. grown in artificial medium after hybridization in the field

D. produced by a somatic embryo in artificial medium

Answer:



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25. Point mutation involves:

A. Change in single base pair

B. Duplication

C. Deletion

D. Insertion

Answer:



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26. Select the correct statement from the ones given below:

A. Barbiturates when given to criminals make them tell the truth

B. Morphine is often given to persons who have undergone surgery as a pain killer

C. Chewing tobacco lowers blood pressure and heart rate

D. Cocaine is given to patients after surgery as it stimulates recovery

Answer:



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27. The genotype of a plant showing the dominant phenotype can be determined by

- A. Test cross
- B. Dihybrid cross
- C. Pedigree analysis
- D. Back cross

Answer:



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28. Which one of the following is used as vector for cloning genes into higher organisms?

A. Baculovirus

B. *Salmonella typhimurium*

C. *Rhizopus nigricans*

D. Retrovirus

Answer:



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29. The permissible use of the technique amniocentesis is for

- A. detecting sex of the unborn foetus
- B. artificial insemination
- C. transfer of embryo into the uterus of the surrogate mother
- D. detecting any genetic abnormality


Answer:




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30. Which one of the following statement is correct


A.

 = mating between relatives

B.

 = unaffected male

C.

 = unaffected male

D.

◆ = male affected

Answer:



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31. Genetic engineering has been successfully used for producing

A. transgenic mice -for testing safety of polio vaccine before use in humans

- B. transgenic models - for studying new treatments for certain cardiac diseases
- C. transgenic cow - Rosie, produces high fat milk for making ghee
- D. animals like bulls - for farm work as they have super power

Answer:



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32. Which one of the following shows maximum, genetic diversity in India?

A. Mango

B. Groundnut

C. Rice

D. Maize

Answer:



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33. Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands. What is so special shown in

it? 5' _____ GAATTC _____ 3'
3 _____ CTTAAG _____ 5'

- A. Palindromic sequence of base pairs
- B. Replication completed
- C. Deletion mutation
- D. Start codon at the 5' end

Answer:





34. In an area where DDT had been used extensively, the population of birds declined significantly because

- A. birds stopped laying eggs
- B. earth worms in the area got eradicated
- C. cobras were feeding exclusively on birds
- D. many of the birds laid, did not hatch

Answer:



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35. Pheretima and its close relatives derive nourishment from

A. sugarcane roots

B. decaying fallen leaves and soil organic matter

C. soil insects

D. small piece of fresh fallen leaves of maize, etc.

Answer:



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36. PCR and Restriction Fragment Length

Polymorphism are the methods for:

- A. Study of enzymes
- B. Genetic transformation
- C. DNA sequencing
- D. Genetic Fingerprinting

Answer:



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37. Consumption of which one of the following foods can prevent the kind of blindness associated with vitamin-A deficiency?

A. Flavr Savr' tomato

B. Canola

C. Golden rice

D. Bt - Brinjal

Answer:



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38. A patient brought to a hospital with myocardial infarction is normally immediately given:

- A. Penicillin
- B. Streptokinase
- C. Cyclosporin-A
- D. Statins

Answer:



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39. Which of the following statements are true regarding DNA polymerase used in PCR ?

- A. It is used to ligate introduced DNA in recipient cell
- B. It serves as a selectable marker
- C. It is isolated from a virus

D. It remains active at high temperature

Answer:



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40. If one strand of DNA has the nitrogenous base sequence at ATCTG, what would be the complementary RNA strand sequence

A. TTAGU

B. UAGAC

C. AACTG

D. ATCGU

Answer:



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41. Which one is the most abundant protein in the animal world?

A. Trypsin

B. Hemoglobin

C. Collagen

D. Insulin

Answer:



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42. Even in absence of pollinating agents seed setting is assured in

A. Commellina

B. Zostera

C. Salvia

D. Fig

Answer:



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43. For transformation, micro -particles coated with DNA to be bombarded with gene gun are made up of

A. Silver or Platinum

B. Platinum or Zinc

C. Silicon or Platinum

D. Gold or Tungsten

Answer:



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44. Which of the following statements is not true of two genes that show 50 % recombination frequency?

A. The genes may be on different chromosomes

B. The genes are tightly linked

C. The genes show independent assortment

D. If the genes are present on the same chromosome, they undergo more than one crossovers in every meiosis

Answer:



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45. Which of the following Bt crops is being grown in India by the farmers?

A. Maize

B. Cotton

C. Brinjal

D. Soybean

Answer:



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46. The colonies of recombinant bacteria appear white in contrast to blue colonies of non - recombinant bacteria because of

A. Non - recombinant bacteria containing
betagalactosidase

B. Insertional inactivation of alpha -
galactosidase in non - recombinant
bacteria

C. Insertional inactivation of alpha -
galactosidase in recombinant bacteria

D. Inactivation of glycosidase enzyme in recombinant bacteria

Answer:



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47. Kyoto Protocol was endorsed at

A. CoP - 3

B. CoP -5

C. CoP - 6

D. CoP -4

Answer:



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48. If both parents are carriers for thalassemia, which is an autosomal recessive disorder, what are the chances of pregnancy resulting in an affected child ?

A. No chance

B. 0.5

C. 0.25

D. 1

Answer:



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49. Uridine, present only in RNA is a

A. Pyrimidine

B. Nucleoside

C. Nucleotide

D. Purine

Answer:



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50. Satellite RNAs are present in some

A. Plant viruses

B. Viroids

C. Prions

D. Bacteriophages

Answer:



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51. Which of the following has maximum genetic diversity in india ?

A. Rice

B. Mango

C. Wheat

D. Groundnut

Answer:



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52. In an inducible operon, the genes are

A. Always expressed

B. Usually not expressed unless a signal
turns them "on"

C. Usually expressed unless a signal turns them “off”

D. Never expressed

Answer:



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53. Which one of the following is hallucinogenic drug?

A. Opium

B. Caffeine

C. Morphine

D. Lysergic acid diethylamide

Answer:



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54. Which one of the following statement is correct

A. The seed in grasses is not endospermic

B. Mango is parthenocarpic fruit

C. A proteinaceous aleurone layer is present in maize grain

D. A sterile pistil is called a staminode

Answer:



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55. In S phase , Amount of DNA in each cell?

A. G_0 and G_1

B. G_1 and S

C. Only G_2

D. G_2 and M

Answer:



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56. Which of the following shows coiled RNA strand and capsomeres?

A. Polio virus

B. Tobacco mosaic virus

C. Measles virus

D. Retrovirus

Answer:



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57. Which one of the following is wrongly matched?

- A. Transcription - Writing information From
DNA to t.RNA
- B. Translation-Using information in m. RNA
to make protein
- C. Repressor protein - Binds to operator to
stop enzyme synthesis
- D. Operon - Structural genes, operator and
promoter

Answer:



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58. The first human hormone produced by recombinant DNA technology is

- A. Insulin
- B. Estrogen
- C. Thyroxin
- D. Progesterone

Answer:



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59. Select the correct option: Direction of RNA Synthesis & Direction of reading of the template DNA strand

A. $5' - 3'$ & $3' - 5'$

B. $3' - 5'$ & $5' - 3'$

C. $5' - 3'$ & $5' - 3'$

D. $3' - 5'$ & $3' - 5'$

Answer:



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60. The structures that are formed by stacking of organised flattened membranous sacs in the chloroplasts are

A. Cristae

B. Grana

C. Stroma lamellae

D. Stroma

Answer:



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61. Which one of the following may require pollinators, but is genetically similar to autogamy?

A. Geitonogamy

B. Xenogamy

C. Apogamy

D. Cleistogamy

Answer:



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62. Which is the most common mechanism of genetic variation in the population of a sexually reproducing organism?

- A. Transduction
- B. Chromosomal aberrations
- C. Genetic drift
- D. Recombination

Answer:



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63. In Bt cotton, the Bt toxin present in plant tissue as protoxin is converted into active toxin due to

- A. Alkaline pH of the insect gut
- B. Acidic pH of the insect gut
- C. Action of gut micro organisms
- D. Presence of conversion factors in insect gut

Answer:





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64. The Chops engineered for glyphosate are resistant tolerant to

- A. Fungi
- B. Bacteria
- C. Insects
- D. Herbicides

Answer:



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65. The mass of living material at a trophic level at a particular time is called

- A. Gross primary productivity
- B. Standing state
- C. Net primary productivity
- D. Standing crop

Answer:



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66. Select the correct option:

- (a) Synapsis aligns homologous chromosomes (i) Anaphase - II
(b) Synthesis of RNA and protein (ii) Zygotene
(c) Action of enzyme recombinase (iii) G_2 - Phase
(d) Centromeres do not separate but chromatids (iv) Anaphase - I
move toward opposite poles (v) Pachytene

A. (a)-(ii),(b)-(i),(c)-(iii),(d)-(iv)

B. (a)-(ii),(b)-(iii),(c)-(v),(d)-(iv)

C. (a)-(i),(b)-(ii),(c)-(v),(d)-(iv)

D. (a)-(ii),(b)-(iii),(c)-(iv),(d)-(v)

Answer:



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67. Golden rice is a genetically modified crop plant where the incorporated gene is meant for biosynthesis of

A. Vitamin C

B. Omega 3

C. Vitamin A

D. Vitamin B

Answer:



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68. Increase in concentration of toxicant at successive trophic levels is called :

- A. Biodeterioration
- B. Biotransformation
- C. Biogeochemical
- D. Biomagnification

Answer:



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69. The introducing of t- DNA into plants involves:

A. Altering the pH of the soil, then heat shocking the plants

B. Exposing the plants to vcold for a brief period

C. Allowing the plant roots to stand in water

D. Infection of the plant by *Agrobacterium tumefaciens*

Answer:



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70. During biological nitrogen fixation, inactivation of nitrogenase by oxygen poisoning is prevented by:

- A. Xanthophyll
- B. Carotene
- C. Cytochrome
- D. Leghaemoglobin

Answer:



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71. Balbiani rings are sites of:

- A. Nucleotide synthesis
- B. Polysaccharide synthesis
- C. RNA and protein synthesis
- D. Lipid synthesis

Answer:



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72. The Avena curvature is used for bioassay of

:

A. Ethylene

B. ABA

C. GA_3

D. IAA

Answer:



73. Antivenom injection contains preformed antibodies while polio drops that are administered into the body contain:

- A. Attenuated pathogens
- B. Activated pathogens
- C. Harvested antibodies
- D. Gamma globulin

Answer:



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74. A complex of ribosome attached to a single strand of RNA is known as

A. Okazaki fragment

B. Polysome

C. Polymer

D. Polypeptide

Answer:



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75. A system of rotating crops with legume or grass pasture to improve soil structure and fertility is called

A. Shifting agriculture

B. Ley farming

C. Contour farming

D. Strip farming

Answer:



76. The taq polymerase enzyme is obtained from:

- A. *Pseudomonas putida*
- B. *Thermus aquaticus*
- C. *Thiobacillus ferrooxidans*
- D. *Bacillus subtilis*

Answer:



77. The amino acid Tryptophan is the precursor for the synthesis of

- A. Cortisol and Cortisone
- B. Melatonin and Serotonin
- C. Thyroxine and Triiodothyronine
- D. Estrogen and Progesterone

Answer:



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78. Which of the following is the start codon

A. UAG

B. AUG

C. UGA

D. UAA

Answer:



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79. The equivalent of a structural gene is :

A. Operon

B. Recon

C. Muton

D. Cistron

Answer:



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80. A foreign DNA and plasmid cut by the same restriction endonuclease can be joined to form a recombinant plasmid using:

- A. Polymerase - III
- B. Ligase
- C. EcoRI
- D. Taq polymerase

Answer:



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81. Which of the following restriction enzymes produces blunt ends?

A. Xho I

B. Hind III

C. Sal I

D. Eco RV

Answer:



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82. Which of the following is the correct sequence of events in the origin of life ?

I. Formation of protobionts II. Synthesis of organic monomers III. Synthesis of organic
IV. Formation of DNA - based genetic systems

A. II,III,I,IV

B. II,III,IV,I

C. I,II,III,IV

D. I,III,II,IV

Answer:





83. DNA dependent RNA polymerase catalyzes transcription on one strand of the DNA which is called the

- A. Alpha strand
- B. Anti strand
- C. Template strand
- D. Coding strand

Answer:



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84. Biochemical Oxygen Demand (BOD) may not be a good index for pollution for water bodies receiving effluents from:

- A. Petroleum industry
- B. Sugar industry
- C. Domestic sewage
- D. Dairy industry

Answer:



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85. What is competitive exclusion principle ?

A. MacArthur

B. Verhulst and Pearl

C. C.Darwin

D. G.F. Gause

Answer:



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86. With reference to factors affecting the rate of photosynthesis, which of the following statements is not correct?

A. Increasing atmospheric $C0_2$ concentration up to 0.05% can enhance $C0_2$ fixation rate

B. C_3 plants respond to higher temperatures with enhanced

photosynthesis while C_4 plants have much lower temperature optimum

C. Tomato is a greenhouse crop which can be grown in CO_2 - enriched atmosphere for higher yield

D. Light saturation for CO_2 fixation occurs at 10% of full sunlight

Answer:



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87. If there are 999 bases in an RNA that codes for a protein with 333 amino acids, and the base at position 901 is deleted such that the length of the RNA becomes 998 bases, how many codons will be altered?

A. 11

B. 33

C. 333

D. 1

Answer:



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88. A gene whose expression helps to identify transformed cell is known as:

- A. vector
- B. Plasmid
- C. Structural gene
- D. Selectable marker

Answer:



89. Okazaki fragments are

A. The lagging strand towards replication fork.

B. The leading strand away from replication fork

C. The lagging strand away from the replication fork

D. The leading strand towards replication

fork

Answer:



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90. Out of 'X' pairs of ribs in humans only 'Y' pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation

A. $X = 12$, $Y = 5$ True ribs are attached dorsally to vertebral column and sternum on the two ends

B. $X = 24$, $Y = Z$ True ribs are dorsally attached to vertebral column but are free on ventral side

C. $X = 24$, $Y = 12$ True ribs are ventrally attached to vertebral column but are free on dorsal side

D. $X = 12$, $Y = 7$ True ribs are attached dorsally to vertebral column and ventrally to the sternum

Answer:



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