BIOLOGY

BOOKS - KUMAR PRAKASHAN KENDRA BIOLOGY (GUJRATI ENGLISH)

BIOTECHNOLOGY AND ITS APPLICATIONS

Section A Exam Orianted Questions Answers From Darpan

1. Explain the use of biotechnology in various fields.

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2. How is biotechnology useful for increasing food production in agriculture.

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3. Give information about Bt cotton.

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4. Give information about pest resistant plants. OR Explain RNA interference.

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5. Give information about production of Genetically Engineered Insulin.

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6. How is gene therapy useful for diagnosis for various diseases ?

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7. Explain the molecular diagnosis methods for diagnosis of disease.

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8. Why are transgenic animals produced ?

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9. What is GEAC ? Give its function.

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10. Give information about Bio patent.

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11. Why is protection of traditional knowledge necessary ? OR Explain Biopiracy.

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Section A Exam Orianted Questions Answers From Darpan Questions

1. How did American company get patent of Basmati rice?

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2. What is called Biopiracy ?

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Section B Scientific Reasons Give Scientific Reasons 2 Marks

1. Bt protein can not kill Bacillus.

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2. In earlier times, Insulin was extracted from pancreas of which animals?

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Section C Objective Question Answer Match The Columns 2 Marks

1. 

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2. 

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3. 

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Section C Objective Question Answer Give Definitions Explanation 1 Mark

1. Give Definitions

Transgenic Animals :

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2. Give Definitions

Patent :

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Section D Textual Exercise

1. Crystals of Bt toxin produced by some bacteria do not kill the bacteria themselves because (A) Bacteria are resistant to toxin (B) Toxin is immature (C) Toxin is inactive (D) Bacteria encloses toxin in special sac

A. bacteria are resistant to the toxin.

B. toxin is immature.

C. toxin is inactive.

D. bacteria encloses toxin in special sac.

Answer:

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2. What are transgenic bacteria ? Illustrate using any one example.

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3. Compare and contrast the advantages and disadvantages of Production of genetically modified crops.

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4. What are cry proteins? Name an organism that produce it. How has man exploited this protein to his benefit ?

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5. What is gene therapy ? Illustrate using the example of adenosine deaminase (ADA) deficiency.

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6. Diagrammatically represent the experimental steps in cloning and expressing an human gene (say the gene for growth hormone) into a bacterium like E. coli ?

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7. Can you suggest a method to remove oil (hydrocarbon) from seeds based on your understanding of rDNA technology and chemistry of oil ?

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8. What is golden rice.

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9. Does our blood have proteases and nucleases ?

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10. How to make orally active protein pharmaceutical. What is the major problem to be encountered ?

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Section E Solution Of Ncert Examplar Multiple Choice Questions Mcqs

1. Bt cotton is not (A) a GM plant (B) Insect resistant (C) a bacterial gene expressing system (D) resistant to all pesticides

A. A GM plant

B. Insect resistant

C. A bacterial gene expressing system

D. Resistant to all pesticides

Answer: A::B::C::D

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2. C-peptide of human insulin is (A) a part of mature insulin molecule (B) Responsible for formation of disulfide bridges (C) Removed

during maturation of pro-insulin to insulin (D) Responsible for it biological activity

A. A part of mature insulin molecule

B. Responsible for formation of disulphide bridges

C. Removed during maturation of pro-insulin to insulin

D. Responsible for its biological activity.

Answer: A::C::D

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3. GEAC stands for (A) Genome Engineering Action Committee (B) Ground Environment Action committee (C) Genetic Engineering Appraisal Committee (D) Genetic and Environment Approval Committee

A. Genome Engineering Action Committee

B. Ground Environment Action Committee

C. Genetic Engineering Approval Committee.

D. Genetic and Environment Approval Committee

Answer: A::C

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4. $\alpha - 1$ antitrypsin is (A) An antacid (B) An enzyme (C) Used to treat arthritis (D) Used to treat emphysema

A. An antacid

B. An enzyme

C. Used to treat arthritis

D. Used to treat emphysema.

Answer: A::D

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5. A probe which is a molecule used to locate homologous sequences in a mixture of DNA or RNA molecules could be (A) a ssRNA (B) a

ssDNA (C) either RNA or DNA (D) can be ssDNA but not ssRNA

A. A ssRNA

B. A ssDNA

C. Either RNA or DNA

D. Can be ssDNA but not ssRNA

Answer: A::C::D

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6. Choose the correct option regarding Retrovirus. (A) A RNA virus that can synthesize DNA during infection (B) A DNA virus that can synthesize RNA during infection (C) A ssDNA virus (D) A dsRNA virus

A. An RNA virus that can synthesise DNA during infection

B. A DNA virus that can synthesise RNA during infection

C. A ssDNA virus

D. A dsRNAvirus

Answer: A::C::D

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7. The site of production of ADA in the body is

(A) Erythrocytes (B) Lymphocytes (D) Blood plasma (D) Osteocytes

A. Erythrocytes

B. Lymphocytes

C. Blood plasma

D. Osteocytes

Answer: B::C

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8. A protoxin is (A) A primitive toxin (B) A denatured toxin (C) Toxin produced by protozoa (D) Inactive toxin

A. A primitive toxin.

B. A denatured toxin

C. Toxin produced by protozoa

D. Inactive toxin

Answer: A::C::D

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9. Pathophysiology is the (A) Study of physiology of pathogen (B) Study of normal physiology of host (C) Study of altered physiology of host (D) None of the above

A. Study of physiology of pathogen

B. Study of normal physiology of host

C. Study of altered physiology of host

D. None of the above

Answer: A::C::D

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10. The trigger for activation of toxin of Bacillus thuringiensis is (A) Acidic pH of

stomach (B) High temperature (C) Alkaline pH of gut (D) Mechanical action in the insect gut

A. Acidic pH of stomach

B. High temperature

C. Alkaline pH of gut

D. Mechanical action in the insect gut

Answer: A::C

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11. Golden rice is (A) A variety of rice grown along the yellow river in China (B) Long stored rice having yellow color tint (C) A transgenic rice having gene for B-carotene (D) Wild variety of rice with yellow colored grains.

A. A variety of rice grown along the yellow river in China

B. Long stored rice having yellow colour tint

C. A transgenic rice having gene for B-carotene

D. Wild variety of rice with yellow coloured grains.

Answer: A::B::C

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12. In RNAi, genes are silenced using (A) ssDNA (B) dsDNA (C) dsRNA (D) ssRNA

A. ssDNA

B. ds DNA

C. dsRNA

D. ssRNA

Answer: A::C::D

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13. The first clinical gene therapy was done for the treatment of (A) AIDS (B) Cancer (C) Cystic

fibrosis (D) SCID (Severe Combined Immuno Deficiency Resulting from deficiency of ADA)

A. AIDS

B. Cancer

C. Cystic fibrosis

D. SCID (Severe Combined Immuno Deficiency resulting from deficiency of ADA)

Answer: A::B::C::D

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14. ADA is an enzyme which is deficient in a genetic disorder SCID, What is the full form of ADA ? (A) Adenosine deoxyaminase (B) Adenosine deaminase (C) Aspartate deaminase (D) Arginine deaminase

A. Adenosine deoxyaminase

B. Adenosine deaminase

C. Aspartate deaminase

D. Arginine deaminase

Answer: A::B::D

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15. Silencing of a gene could be achieved through the use of (A) RNAi only (B) Antisense RNA only (C) By both (A) and (b) (D) None of these

A. (RNAI) only

B. Antisense RNA only

C. By both

D. None of the above

Answer: B::C

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Section E Solution Of Ncert Examplar Very Short Answer Type Questions

1. In view of the current food crisis, it is said, that we need another green revolution.

Highlight the major limitations of the earlier green revolution.

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2. Expand GMO. How is it different from a hybrid ?

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3. Differentiate between diagnostics and therapeutics. Give one example for each

category.

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4. Give the full form of ELISA. Which disease can be detected using it ? Discuss the principle underlying the test.

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5. Can a disease be detected before its symptoms appear ? Explain the principle

involved.

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6. Write a short note on biopiracy highlighting the exploitation of developing countries by the developed countries.

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7. Many proteins are secreted in their inactive form. This is also true of many toxic proteins

produced by microorganisms. Explain how the mechanism is useful for the organism producing the toxin ?

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8. While creating genetically modified organisms, genetic barriers are not respected. How can this be dangerous in the long run ?

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9. Why has the Indian Parliament cleared the second amendment of the country's patents bill ?

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10. Give any two reasons why the patent on Basmati should not have gone to an American Company.

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11. How was Insulin obtained before the advent of rDNA technology ? What were the problems encountered ?

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12. With respect to understanding diseases', discuss the importance of transgenic animal models.

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13. Name the first transgenic cow. Which gene was introduced in this cow ?

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14. PCR is a useful tool for early diagnosis of an infectious disease. Elaborate.

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15. What is GEAC and what are its objectives?

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16. For which variety of Indian rice, the patent was filed by a USA Company ?

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17. Discuss the advantages of GMO.

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Section E Solution Of Ncert Examplar Short Answer Type Questions

1. Gene expression can be controlled with the help of RNA. Explain the method with an example.

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2. Ignoring our traditional knowledge can be proven costly in the area of biological patenting. Justify.

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3. Highlight any four areas where genetic modification of plants has been useful.

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4. What is a recombinant DNA vaccine ? Give two examples.

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5. Why is it that the line of treatment for a genetic disease is different from infectious diseases ?

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6. Discuss briefly how a probe is used in molecular diagnostics.

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7. Who was the first patient who was given gene therapy ? Why was the given treatment recurrent in nature ?

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8. Taking examples under each category, discuss upstream and downstream processing.

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9. Define Antigen and Antibody. Name any two diagnostic kits based upon them.

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10. ELISA technique is based on the principles of antigen-antibody interaction. Can this technique be used in the molecular diagnosis of a genetic disorder, such as phenylketonuria ?

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11. How is a mature, functional insulin hormone different from its prohormone form ?

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12. Gene therapy is an attempt to correct a genetic defect by providing a normal gene into individual. By this the normal function can be restored. An alternate method would be to provide the gene product (protein/enzyme)

known as enzyme replacement therapy, which would also restore the function. Which in your opinion is a better option ? Give reason for your answer.

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13. Transgenic animals are the animals in which a foreign gene is expressed. Such animals can be used to study the fundamental biological process, phenomenon as well as for

producing products useful for mankind. Give one example for each type.

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14. When a foreign DNA is introduced into an organism, how is it maintained in the host and how is it transferred to the progeny of the organism ?

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15. Bt cotton is resistant to pest, such as lepidopteron, dipterans and coleopterans. Is Bt cotton also resistant to other pests as well ?

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Section E Solution Of Ncert Examplar Long Answer Type Questions

1. A patient is suffering from ADA deficiency. Can he be cured ? How ?

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2. Define transgenic animals. Explain in detail any four areas where they can be utilised.

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3. You have identified a useful gene in bacteria. Make a flow chart of the steps that you would follow to transfer this gene to a plant.

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4. Highlight five areas where biotechnology has influenced our lives.

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5. What are the various advantages of using genetically modified plants to increase the overall yield of the crop ?

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6. Explain with the help of one example how genetically modified plants can:

(a) Reduce usage of chemical pesticides.

(b) Enhance nutritional value of food crops

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7. List the disadvantages of insulin obtained from the pancreas of slaughtered cows and pigs.

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8. List the advantages of recombinant insulin.

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9. What is meant by the term bio-pesticide ? Name and explain the mode of action of a popular bio pesticide.

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10. Name the five key tools for accomplishing the tasks of recombinant DNA technology.

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Section F Multiple Choice Questions Mcqs From Darpan Based On Textbook

1. What is called mobile genetic ?

A. Plasmid

B. Transposones

C. RNA

D. VNTRS

Answer: B

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2. Which human protein is possessed by transgenic cow's milk?

A. Lacta albumin

B. Albumin

C. Alphalactalbumin

D. Betalectalbumin

Answer: C

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3. Which is the example of bio-piracy ?

A. Transgenic cow

B. Brasica

C. Basmati rice

D. Transgenic mice/rat

Answer: B

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4. Name the cells responsible for forming insulin.

A. α-cells

B. β cells

C. δ -cells

D. T-cells

Answer: B

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5. How many amino acids are there in A and B sequence of human insulin respectively ?

A. 21,30

B. 21,51

C. 30,20

D. 31,32

Answer: A

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6. Find proper option in-vivo method. (A) The use of microbes is necessary as vectors (B) The use of bone marrow is required (C) Desired genes are prevented being part of DNA of a cell (D) All given

A. The use of microbes is necessary as vectors.

B. The use of bone marrow is required.

C. Desired genes are prevented being part of DNA of a cell.

D. All given

Answer: A

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7. What is called C-peptide ?

A. Proinsulin - more stretched

B. Adult insulin

C. Insulin in simple form

D. None

Answer: A

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8. For treatment and diagnosis of which diseases is gene therapy needed ?

A. Typhoid-Jaundice

B. Cancer-Parkinsons

C. Cold-Pneumonia

D. Given all

Answer: B

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9. Which protein is obtained from pentadiplandra brazzeana ? (A) Cry protein (B) Brazzein (C) Brassica (D) GM - food

A. Cry protein

B. Brazine

C. Brasica

D. GM-food

Answer: B

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10. Which genetically modified animals exist in maximum number? (A) Cow (B) Fish (C) Rat (D) Pig

A. Cow

B. Fish

C. Rat

D. Pig

Answer: C

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11. Who acts as simple model for discovery of treatment of human disease ? (A) Birds (B) Monkeys (C) Transgenic animals (D) Rats

A. Birds

B. Monkeys

C. Transgenic animals

D. Rats

Answer: C

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12. The green revolution succeeded in tripling the food supply but yet it was not enough to feed the growing human population increased yield have mainly been due to the use of

(a) Improved crop variety

(b) Better management practices

(c) Agrochemicals(fertilizers and pesticides) (A) a and b (B) b and c (C) a and c (D) a, b and c

A. a and b

B. b and c

C. a and c

D. a, b and c

Answer: B

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13. the choice of Bt-toxin genes depends upon (A) type of crop (B) types of targeted pest (C) type of vector (D) both (A) and (B)

A. type of the crop

B. type of the targeted pest

C. the type of vector

D. both a and b

Answer: D

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14. Strategy used to prevent nematode infection of tobacco roots is (A) Use of agrochemicals (B) Bt toxin gene (C) Gene mutation (D) RNA interference

A. Use of agrochemicals

B. Bt toxin gene

C. Gene mutation

D. RNA interference

Answer: D

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15. Insect pest resistant Bt cotton was developed by (A) Somaclonal variations (B)

Micropopagation (C) Transgenic technology (D) Somatic hybridization

A. Somaclonal variations

B. Micropropagation

C. Transgenic technology

D. Somatic hybridization

Answer: B

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16. What is correct pair ?

A. CryIAb-Cotton bollworms

B. CryIAc-Cotton bollworms

C. CryIAc-Corn borer

D. CryllAb-Corn borer

Answer: B

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17. ADA deficiency is caused by (A) Deletion (B) Translocation (C) Substitution (D) Inversion

A. Deletion

B. Translocation

C. Substitution

D. Inversion

Answer: A

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18. Product of biotechnology is (A) Transgenic crop (B) Biofertilizer (C) Humulin (D) All of the above

A. Transgenic crop

B. Biofertilizer

C. Humulin

D. All the above

Answer: D

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19. How many transgenic varieties of basmati rice are grown in India ? (A) 2,00,000 (B) 50000 (C) 1000 (D) 27

A. 200000

B. 50000

C. 1000

D. 27

Answer: D

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20. A regulatory body working for the release of transgenic crops is (A) ICWMI (B) IARI (C) IRRI (D) GEAC

A. ICWMI

B. IARI

C. IRRI

D. GEAC

Answer: D

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21. Biopiracy is (A) Exploitation of bio-resources (B) Patenting bio-resources of others (C) Use of bio-resources without authorization (D) Both (B) and (C)

A. Exploitation of bioresources

B. Patenting bioresources of others

C. Use of bioresources without authorization

D. Both B and C

Answer: D

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22. Giant mouse has been produced through (A) Tissue culture (B) Gene differentiation sales (C) Gene manipulation (D) All of the above

A. Tissue culture

B. Gene differentiation Sales

C. Gene manipulation

D. All the above

Answer: C

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23. Which of the following has not been synthesized by DNA technology (A) Insulin (B) Haemoglobin (C) Somatostatin (D) Interferon

A. Insulin

B. Haemoglobin

C. Somatostatin

D. Interferon

Answer: B

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24. Disorders in which B-lymphocytes are not formed is

A. AIDS

B. SCID

C. Cystic fibrosis

D. Muscular dystrophy

Answer: B

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25. Bt toxin is

A. Protein

B. Carbohydrate

C. Lipid

D. Enzyme

Answer: A

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26. Green revolution succeeded in increasing the yield of the crop by a factor

A. 4

B. 3

C. 2

D. 5

Answer: B

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27. $\alpha - 1$ antitrypsin is (A) An antacid (B) An enzyme (C) Used to treat arthritis (D) Used to treat emphysema

A. Cancer

B. Rheumatoid arthritis

C. Alzheimer's disease

D. Emphysema

Answer: D

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28. Transgenic hirudin is obtained from

A. Ocimum sanctum

B. Brasica napus

C. Potato

D. Tomato

Answer: B

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29. Which transgenic animal has been given human genes for organ transplantation into humans without risk of rejection ?

A. Cow

B. Sheep

C. Goat

D. Pig

Answer: D

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30. Which of these is used as a vector for gene therapy in SCID and gene cloning in higher organisms?

A. Retrovirus

B. Enterovirus

C. Arbovirus

D. Rotavirus

Answer: A

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31. Find the odd one out

A. Vaccines-immunology

B. Eco-degradation-pesticides

C. Solar energy converter-pest control

D. Recombinant DNA-Biotechnology

Answer: D

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32. C-peptide of human insulin is (A) a part of mature insulin molecule (B) Responsible for formation of disulfide bridges (C) Removed during maturation of pro-insulin to insulin (D) Responsible for it biological activity

A. Not present in proinsulin

B. Present in mature insulin

C. Removed during maturation of insulin

D. Also present in artificial insulin

Answer: C

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33. Gene therapy first used in the treatment of

A. Albinism

B. Haemophilia

C. SCID

D. LIQID

Answer: C

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34. Which one of the following is method of gene silencing

A. tRNA

B. rRna

C. RNAi

D. mRna

Answer: C

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35. T-DNA for gene transfer is present in (A) Bacillus thuringiensis (B) Meloidogyne incognita (C) Agrobacterium tumefaciens (D) E.coli

A. Bacillus thuringiensis

B. Meloidogyne incognitia

C. Agrobacterium tumefaciens

D. E.coli

Answer: C

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36. Continuous addition of sugars in fed batch fermentation is done to (A) Produce methane

(B) Obtain antibiotics (C) Purify enzymes (D) Degrade sewage

A. Produce methane

B. Obtain antibiotics

C. Purify enzymes

D. Degrade sewage

Answer: C

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37. Genetically engineered human insulin is called : (A) Humulin (B) Haematin (C) Hybridoma (D) Hybrid

A. Humulin

B. Haematin

C. Hybridoma

D. Hybrid

Answer: A

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38. An enzyme produced commercially from Saccharomyces cerevisiae (A) Lactase (B) Invertase (C) Amylase (D) Maltase

A. Lactase

B. Invertase

C. Amylase

D. Maltase

Answer: B

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39. Fermentation ability of yeast is due to (A) Amylase (B) Galactase (C) Zymase (D) Invertase

A. Amylase

B. Galactase

C. Zymase

D. Invertase

Answer: C

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40. Enzyme not used in detergents are (A) Lipases (B) Proteases (C) Amylases (D) Gluco-isomerase

A. Lipases

B. Proteases

C. Amylases

D. Gluco-isomerases

Answer: B

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41. Anticoagulant hirudin is found in (A) snake (B) Lizard (C) Leech (D) Scorpion

A. Snake

B. Lizard

C. Leech

D. Scorpion

Answer: C

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42. rRNA is synthesized in (A) Nucleus (B) Nucleolus (C) Cytoplasm (D) Endoplasmic reticulum

A. Nucleus

B. Nucleolus

C. Cytoplasm

D. Endoplasmic reticulum

Answer: B

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43. Insulin has 51 amino acids arranged in (A) Single polypeptide (B) Two polypeptides of 21 and 30 amino acids (C) Two polypeptides of 25 and 26 amino acids (D) Three polypeptides having 15, 16 and 20 amino acids

A. Single polypeptide

B. Two polypeptides of 21 and 30 amino acids

C. Two polypeptides of 25 and 26 amino acids

D. Three polypeptides having 15,16 and 20 amino acids

Answer: B

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44. Steroids are used in (A) Treatment of hormonal imbalance (B) Birth control (C) Treatment of autoimmune disease (D) All of above

A. Treatment of hormonal imbalance

B. Birth control

C. Treatment of autoimmune disease

D. All of above

Answer: D

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45. Herbicide resistant gene in plants is (A) Ct

(B) Mt (C) Bt (D) Gst

A. Ct

B. Mt

C. Bt

D. Gst

Answer: D

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46. Most widely used bioweapon is (A) Bacillus subtilis (B) Pseudomonas putida (C) Bacillus anthracis (D) None of these

A. Bacillus subtilis

B. Pseudomonas putida

C. Bacillus anthracis

D. None of these

Answer: C

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47. DNA fingerprinting refers to (A) Molecular analysis of profiles of DNA samples (B) Analysis of DNA samples using imprinting device (C)

Technique used for molecular analysis of different specimens of DNA (D) Techniques used for identification of fingerprints of individuals

A. Molecular analysis of profiles of DNA samples

B. Analysis of DNA samples using imprinting device

C. Technique used for molecular analysis of different specimens of DNA

D. Techniques used for identification of fingerprints of individuals

Answer: A

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48. Streptomycin is obtained from (A) Streptomyces griseus (B) S.aurofaciens (C) S.venezualae (D) S.ramosus

A. Streptomyces griseus

B. S.aureofaciens

C. S.venezualae

D. S.ramosus

Answer: A

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49. Given figure represents the maturation of proinsulin into insulin. Identify the product 'A'.

A. Polypeptide chain 'A'

B. Polypeptide chain 'B'

C. Polypeptide chain 'C'

D. Both B and C

Answer: C

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50. Proinsulin contain (A) A Peptide (B) B Peptide (C) C Peptide (D) All of these

A. A Peptide

B. B Peptide

C. C Peptide

D. All of these

Answer: D

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51. The first clinical gene therapy was given in

(A) 1992 (B) 1990 (C) 1995 (D) 1997

A. 1992

B. 1990

C. 1995

D. 1997

Answer: B

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52. Which one of the following is based on antigen - antibody reaction ? (A) PCR (B) ELISA

(C) Serum analysis (D) Transcriptionally active gene

A. PCR

B. ELISA

C. Serum analysis

D. Transcriptionally active gene

Answer: B

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53. Match the column

A. i - C, ii - A, iii - B, iv - D

B. i - B, ii - A, iii - D, iv - C

C. i-D, ii - A, iii - C, iv - B

D. i - A, ii - D, iii - B, iv - C

Answer: A

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54. Eli lily, an American company, prepared two DNA sequences corresponding to A & B chains of human and introduced them to plasmids of E. coli to produce insulin chains. Chains A & B were produced separately, extracted and combined by creating (A) Peptide bonds (B) Ionic bonds (C) H-bonds (D) Disulfide bonds

A. Peptide bonds

B. Ionic bonds

C. H- bonds

D. Disulphide bonds

Answer: D

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55. Which of the following could be a permanent cure to treat severe immunodeficiency (SCID) ?

A. Bone marrow transplant

B. Enzyme replacement therapy

C. Both (A) and (B)

D. Gene therapy in early embryonic life

Answer: D

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56. How many recombinant therapeutics have been approved for human use world over ?

A. 12

B. 30

C. 20

D. 18

Answer: B

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57. Animals that have their DNA manipulated to posses and express an extra gene are known as

A. Foreign animals

B. Superior animals

C. Transgenic animals

D. Intergenic animals

Answer: C

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58. About 95% of all existing transgenic animals are (A) Rabbits (B) Pigs (C) Cows (D) Mice

A. Rabbits

B. Pigs

C. Cows

D. Mice

Answer: D

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59. Today, transgenic models exist for many human diseases which include

(a) Cancer

(b) Cystic Fibrosis

(c) Rheumatoid arthritis

(d) Alzheimer's disease (A) a & c only (B) b & c only (C) a, b & c only (D) All of the above

A. a & c only

B. b&c only

C. a, b & c only

D. All of the above

Answer: D

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60. Which of the following techniques serve the purpose of early diagnose ?

a. Recombinant DNA technology

b. PCR

C. ELISA (A) a only (B) a & c only (C) a & b only

(D) All

A. a only

B. a &c only

C. a & b only

D. All

Answer: D

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61. An analysis of chromosomal DNA using the southern hybridisation technique doesn't use

A. Electrophoresis

B. Blotting

C. Autoradiography

D. PCR

Answer: D

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62. The introduction to t-DNA into plant involves (A) Allowing plant tool to stand in water (B) Infection of plant by Agrobacterium tumefaciens (C) Altering the pH of the soil, then heat shocking the plants (D) Exposing the plants to cold for a brief period

A. Allowing plant tool to stand in water

B. Infection of the plant by Agrobacterium tumefaciens

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

D. Exposing the plants to cold for a brief period

Answer: B

Watch Video Solution

63. The crops engineered for glyphosate are resistant to (A) Herbicides (B) Fungi (C) Bacteria (D) Insects

A. Herbicides

B. Fungi

C. Bacteria

D. Insects

Answer: A

Watch Video Solution

64. In Bt cotton, the Bt toxin present in the plant tissue as protoxin is converted into active toxin due to (A) Presence of conversion

factors in insect gut (B) Alkaline pH of the insect gut (C) Acidic pH of the insect gut (D) Action of gut microorganisms

A. Presence of conversion factors in the insect gut

B. Alkaline pH of the insect gut

C. Acidic pH of the insect gut

D. Action of gut microorganisms

Answer: B

 Watch Video Solution

65. Which body of the government of india regulates GM research and the safety of introducing GM organisms for public services

A. Research Committee on Genetic Manipulation

B. Bio-Safety Committee

C. Indian Council of Agricultural Research

D. Genetic Engineering Approval Committee

Answer: D

Watch Video Solution

66. A monopoly granted to a person who as either invented a new and useful article, made improvement in an article or invented a new process of making an article is called

A. Biopiracy

B. Bioethics

C. Patent

D. Genetic modification

Answer: C

Watch Video Solution

67. Rules of conduct that may be used to regulate our activities in relation to the biological world

A. Bioethics

B. Biowar

C. Biopatent

D. Biopiracy

Answer: A

 Watch Video Solution

68. Biopiracy is (A) Exploitation of bio-resources (B) Patenting bio-resources of others (C) Use of bio-resources without authorization (D) Both (B) and (C)

A. Use of biopatents

B. Thefts of plants and animals

C. Stealing of bioresources

D. Exploitation of bioresources without authentic permission

Answer: D

Watch Video Solution

69. X is the right granted by a government to an inventor to prevent others from commercial use of his invention. When 'X' are granted for biological entities and for the products derived from them, these are called Y.

A. X = patent, Y = Biopatent

B. X = piracy, Y = Biopiracy

C. X = patent, Y = Biopiracy

D. X = piracy, Y = Biopatent

Answer: A

Watch Video Solution

70. Which of the following statements is correct regarding Genetic Engineering Appraisal Committee (A) It makes decision regarding the validity of the GM crop (B) It ensures the safety of introducing GM organisms for public services (C)Genetic modifications of organisms can have unpredictable results when such organisms

are introduced into the ecosystem. Therefore, the Indian government has set up organization such as GEAC (D) All of the above

A. It makes decision regarding the validity of the GM crop

B. It ensures the safety of introducing GM organisms for public services

C. Genetic modifications of organisms can have unpredictable results when such organisms are introduced into the

ecosystem. Therefore, the Indian government has set up organisation such as GEAC

D. All the above

Answer: D

 Watch Video Solution

71. Which of the following statements is correct? (A)The current interest in the manipulation of microbes, plants and animals

has raised serious ethical issues. (B) The possible risk of genetic engineering is the accidental production of antibiotic resistant organisms (C) Although the risks are possible, genetic engineering offers more of contribution to human welfare than threats (D) All of these

A. The current interest in the manipulation of microbes, plants and animals has raised serious ethical issues.

B. The possible risk of genetic engineering is the accidental production of antibiotic resistant organisms

C. Although the risks are possible, genetic engineering offers more of contribution to human welfare than threats

D. All of these

Answer: D

 Watch Video Solution

72. Biopatents are

(i) Right to use invention

(ii) Right to use biological entities

(iii) Right to use products

(iv) Right to use Process (A) (i) and (ii) (B) (ii) only (C) (i), (ii) and (iv) (D) All of these

A. (i) and (ii)

B. (ii) only

C. (i), (ii) and (iv)

D. All of these

Answer: D

Watch Video Solution

73. Which of the following has been covered under the broad patent category ? (A) Triticum (B) Oryza (C) Pisum sativum (D) Brassica

A. Triticum

B. Oryza

C. Pisum sativum

D. Brassica

Answer: B

Watch Video Solution

74. Early detection of disease is possible by (A) PCR (B) Gene therapy (C) Recombinant DNA technology and ELISA (D) Both (A) and (C)

A. PCR

B. Gene therapy

C. Recombinant DNA technology and ELISA

D. Both (A) and (C)

Answer: D

Watch Video Solution

75. The study of all the proteins coded by the genome is called as (A) Proteomics (B) Genomics (C) gene library (D) Proteology

A. Proteomics

B. Genomics

C. Gene library

D. Proteology

Answer: A

Watch Video Solution

76. A doctor while operating on an HIV (+) patient accidentally cuts himself with a scalpel. Suspecting himself to have contacted the virus, which test he has to do, in order to confirm his doubt ? (A) PCR (B) Routine urine examination (C) TLC (D) DLC

A. PCR

B. Routine urine examination

C. TLC

D. DLC

Answer: A

 Watch Video Solution

77. Choose the correct option regarding Retrovirus. (A) A RNA virus that can synthesize DNA during infection (B) A DNA virus that can

synthesize RNA during infection (C) A ssDNA virus (D) A dsRNA virus

A. An RNA virus that can synthesise DNA during infection

B. A DNA virus that can synthesise RNA during infection

C. A ssDNA virus

D. A ds RNA virus

Answer: A

 Watch Video Solution

78. All are the biotechnological applications in order to increase food production except

A. Apiculture

B. Agro-chemical based agriculture

C. Organic farming

D. Genetically engineered crop-based agriculture

Answer: A

Watch Video Solution

79. Bt toxin have been expressed in plants in order to provide resistance against

i. Lepidopterans and fungi

ii. Animals and bacteria

iii. Bacteria and fungi

iv. Coleopterans and dipterans v. Lepidopterans

A. (ii) and (iii)

B. (i) ,(ii) and (iv)

C. (iii) and (v)

D. (iv) and (v)

Answer: D

 Watch Video Solution

80. Which of the following risks are associated with genetically modified foods?

A. Toxicity in human beings

B. Allergic reactions in human beings

C. Antibiotic resistance in microorganisms present in alimentary canal

D. All of above

Answer: D

Watch Video Solution

81. Which of the following types of ELISA contain the following steps ?

Antigen binding, blocking, primary antibody, secondary antibody, enzyme-linked antibody,

substrate, colorimetric reading in the following figure

A. Direct ELISA

B. Indirect ELISA

C. Competitive ELISA

D. Sandwich ELISA

Answer: D

View Text Solution

82. Which of the following is not a direct method of gene transfer ? (A) Electroporation (B) Chemical mediated gene transfer (C) Biolistics (D) Bacteriophage vector

A. Electroporation

B. Chemical mediated gene transfer

C. Biolistics

D. Bacteriophage vector

Answer: D

 Watch Video Solution

83. In genetic engineering after the creation of recombinant DNA has to be transferred into the host using a vector. Which of the following agents can be used as a vector ?

Agents A. Plasmids B . Bacteriophages

C. Transposons D. Mosquito

E. A Bacterium

A. A, B, C & E

B. A, B & E

C. A, B & C

D. A, B, C, D & E

Answer: C

Watch Video Solution

84. Which is the closest value denoting protein content in the g/litre of the milk produced by ROSIE -the cow (A) 2.4 (B)2.6 (C)2.8 (D)2.0

A. 2.4

B. 2.6

C. 2.8

D. 2.0

Answer: A

 Watch Video Solution

85. Identify the transgenic animal in which gene for fluorescence has been introduced (A) ANDI (B) Rosie (C) frosty (D) Meagan

A. ANDI

B. Rosie

C. Frosty

D. Meagan

Answer: A

 Watch Video Solution

86. The gene involved in the process of formation of Bt cotton by genetic engineering ?

A. 'ras gene'

B. 'myc gene'

C. 'cry gene'

D. 'Lac gene'

Answer: C

Watch Video Solution

87. Pick up the correct pair (A) Blue revolution-increase in fish production (B) White revolution-increase in milk production (C)

Silver revolution-increase in silk production (D) Both (A) and (B)

A. Blue revolution-increase in fish production
B. White revolution-increase in milk production
C. Silver revolution-increase in silk production
D. Both (A) and (B)

Answer: D

Watch Video Solution

88. which option would be best for producing recombinant protein in large amount ? (A) Laboratory flask of large volume (B) A stirred - tank bioreactor without inlet and outlet (C) A continuous culture system (D) None of these

A. Laboratory flask of large volume

B. A stirred -tank bioreactor without inlet and outlet

C. A continuous culture system

D. None of these

Answer: C

Watch Video Solution

89. Which drug is produced through recombinant technology for cancer treatment ? (A) Insulin (B) Interferon (C) HGH (D) TSH

A. Insulin

B. Interferon

C. HGH

D. TSH

Answer: B

Watch Video Solution

90. Advanced laboratory facilities for DNA fingerprinting in India is at

A. ICAR, New Delhi

B. NBPGR, New Delhi

C. CSIR, New Delhi

D. CCMB, Hyderabad

Answer: D

Watch Video Solution

91. Genes for virulence occurs in

A. pBR322

B. All plasmids

C. Ti plasmids

D. None of these

Answer: C

 Watch Video Solution

92. Biotechnology can also be used in developing (A) Bioweapons (B) Highly infectious pathogens (C) Disease resistant pathogen with marked virulence (D) All of the above

A. Bioweapons

B. Highly infectious pathogens

C. Disease resistant pathogens with marked virulence

D. All the above

Answer: D

Watch Video Solution

93. Cutting and re-joining of DNA fragments for construction of r-DNA is called (A) Gene cloning (B) Gene splicing (C) Gene counselling (D) Gene synthesis

A. Gene cloning

B. Gene splicing

C. Gene counselling

D. Gene synthesis

Answer: B

Watch Video Solution

Watch Video Solution

94. DNA probe is synthesized with the help of (A) Labelled amino acids (B) Labelled nucleotides (C) Labelled ATP (D) Labelled m-RNA Templates

A. Labelled amino acids

B. Labelled nucleotides

C. Labelled ATP

D. Labelled m-RNA Templates

Answer: B

Watch Video Solution

95. Salt stress, disease resistance in plants and cold stress in plants can be introduced by (A) Genetic engineering (B) Tissue culture (C) Hybridoma technology (D) None of these

A. Genetic engineering

B. Tissue culture

C. Hybridoma technology

D. None of these

Answer: B

 Watch Video Solution

96. A and B chains are found in

A. Insulin

B. Interferon

C. Somatotropin

D. Rabies vaccine

Answer: A

Watch Video Solution

97. Human body synthesizes interferon after

A. Viral infection

B. Bacterial infection

C. Cough and cold

D. Any type of infection

Answer: A

Watch Video Solution

98. Lymphocyte are capable of synthesizing

A. Antigens

B. Antibodies

C. Antibiotics

D. None of these

Answer: B

Watch Video Solution

99. The RNAi stands for

A. RNA inactivation

B. RNA initiation

C. RNA interference

D. RNA interferon

Answer: C

 Watch Video Solution

100. Deliberate alteration of genome for treatment of disease is called (A) Transformation rescue (B) Imprinting (C) Gene therapy (D) Exon shuffle

A. Transformation rescue

B. Imprinting

C. Gene therapy

D. Exon shuffle

Answer: C

Watch Video Solution

Watch Video Solution

101. Why insulin is not given orally to a diabetic patient ?

A. Insulin is bitter in taste

B. Insulin drastically reduces glucose level when taken orally

C. It is a peptide

D. It can lead to peptic ulcers

Answer: C

Watch Video Solution

Watch Video Solution

102. Which of the following statements regarding gene therapy is/are correct?

A. It is an application of biotechnology, in which a defective gene is manipulated by introduction of a normal, healthy and functional gene.

B. The genetic disorders that are being investigated for gene therapy, range

from sickle-cell anaemia to severe combined immuno-deficiency (SCID).

C. The first clinical gene therapy was given in 1990 to a 4 year old girl with adenosine deaminase (ADA) deficiency

D. All of these

Answer: D

 Watch Video Solution

103. Read the given statements and select the correct option

Statement 1: In recombinant DNA technology, human genes are often transferred into bacteria (prokaryotes) or yeasts (eukaryotes).

Statement 2: Both bacteria and yeast multiply very fast to form huge populations which express the desired gene.

A. Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.

B. Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is correct and statement 2 is incorrect.

D. Both statements 1 and 2 are incorrect.

Answer: A

Watch Video Solution

104. Read the given statements and select the correct option

Statement 1: PCR technique is helpful in detecting bacterial and viral diseases even when symptoms of the disease are not yet visible.

Statement 2 : Very low concentrations of bacteria or viruses in human body can be detected by amplification of their nucleic acid using the PCR technique

A. Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.

B. Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is correct and statement 2 is incorrect.

D. Both statements 1 and 2 are incorrect.

Answer: A

Watch Video Solution

105. DNA fingerprinting refers to (A) Molecular analysis of profiles of DNA samples (B) Analysis of DNA samples using imprinting device (C) Technique used for molecular analysis of different specimens of DNA (D) Techniques used for identification of fingerprints of individuals

A. Molecular analysis of profiles of DNA samples

B. Analysis of DNA samples using imprinting devices

C. Techniques used for chemical analysis of different specimens of DNA

D. Techniques used for identification of fingerprinting of individuals

Answer: A

 Watch Video Solution

106. What is the permanent cure of adenosine deaminase (ADA) deficiency ?

A. Bone marrow transplantation

B. Enzyme replacement therapy in which functional ADA is given to patient by injection

C. Infusion of genetically engineered lymphocytes (in which functional ADA-

CDNA is introduced) into the patient's blood

D. Introduction of gene isolated from the marrow cells which produce ADA, into the cells of the patient at early embryonic stages

Answer: D

Watch Video Solution

107. Which of the following statements is not correct? (A) Most bt toxins are insect group specific (B) RNAi takes place in all eukaryotic as well as prokaryotic organisms as a method of cellular defense (C) The recombinant therapeutics do not include unwanted immunological responses in humans (D) Adult-onset diabetes can be controlled by taking insulin at regular intervals

A. Most Bt toxins are insect group specific

B. RNAi takes place in all eukaryotic as well as prokaryotic organisms as a method of cellular defence

C. The recombinant therapeutics do not induce unwanted immunological responses in humans

D. Adult-onset diabetes can becontrolled by taking insulin at regular time intervals

Answer: B

Watch Video Solution

108. Gene therapy can be referred to as

A. Pre-clinical testing for inherited disease in newborns

B. Treatment of diseases caused by genetic defect

C. Genetic engineering using rDNA technology

D. Cancer treatment using in-vitro cultured stem cells

Answer: B

Watch Video Solution

109. An example of gene therapy is

A. Production of injectable hepatitis B vaccine

B. Production of vaccines in food crops like potatoes which can be eaten

C. Introduction of gene for adenosine deaminase in persons suffering from SCID

D. Production of test tube babies by artificial insemination and implantation of fertilized eggs

Answer: C

 Watch Video Solution

110. For effective treatment of a disease

A. Early diagnosis is required but understanding of its pathophysiology is not required

B. Early diagnosis is not required but understanding of its pathophysiology is required

C. Early diagnosis and understanding of its pathophysiology are required

D. Neither early diagnosis nor understanding of its pathophysiology is required

Answer: C

 Watch Video Solution

111. Second generation vaccines are prepared by recombinant DNA technology. Which of the following are the examples of such vaccines ? (A) Hepatitis B virus vaccine (B) Herpes virus vaccine (C) Salk's polio vaccine (D) Both (A) and (B)

A. Hepatitis B virus vaccine

B. Herpes virus vaccine

C. Salk's polio vaccine

D. Both (A) and (B)

Answer: D

Watch Video Solution

112. Select the correct options to fill-up the blanks.

(i) ..... enzyme is crucial for the immune system to function and its absence is caused by the deletion of a gene

(ii) Insulin consists of ..... and .... that are linked together by .....

(iii) Transgenic mice are being used to test the

safety of the .....

(iv) ..... involves silencing of a specific mRNA due to a complementary dsRNA molecule that binds to and prevents translation of mRNA

A. (i) Adenosine deaminase (ii) A-chain, B-chain, disulphide bridges (iii) polio vaccine (iv) RNAI

B. (i) RNAi (ii) A-chain, B-chain, disulphide bridges (iii) Adenosine deaminase (iv) Polio vaccine

C. (i) Adenosine deaminase (ii) A-chain, B-chain, hydrogen bonds (iii) polio vaccine (iv) RNAi

D. (i) RNAi (ii) A-chain, B-chain, non-covalent bridges (iii) polio vaccine (iv) Adenosine deaminase

Answer: A

 Watch Video Solution

113. Read the given statements and select the correct option

Statement 1: Transgenic mouse is termed as 'super mouse' because it is twice big in size than the normal mouse

Statement 2: In 'super mouse', the gene for human growth factor has been introduced and expressed.

A. Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.

B. Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is correct and statement 2 is incorrect.

D. Both statements 1 and 2 are incorrect.

Answer: A

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114. Which step has been taken by the Government of India to cater to the requirements of patent terms and other emergency provisions in this regard ? (A) Biopiracy act (B) Indian patents bill (C) ETI act (D) Negotiable instruments act

A. Biopiracy act

B. Indian patents bill

C. ETI act

D. Negotiable instruments act

Answer: B

 Watch Video Solution

115. Extra amino acids present in pro-insulin are

A. 23

B. 35

C. 45

D. 58

Answer: D

 Watch Video Solution

116. Amino acids present in C-peptide of pro-insulin are (A) 23 (B) 31 (C) 38 (D) 43

A. 23

B. 35

C. 38

D. 43

Answer: B

Watch Video Solution

117. Eli-Lily prepared insulin genes A and B

A. Synthetically

B. Splicing of natural genes

C. Reverse transcription

D. All the above

Answer: C

Watch Video Solution

118. Cyanogen bromide was used by Eli-Lily and Genetec for

A. Separating insulin from B-galactosidase

B. Converting proinsulin into insulin

C. Fusion of insulin subunits

D. Both(A) and (B)

Answer: A

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119. Magic antibodies are (A) Semisynthetic antibodies (B) Synthetic antibodies (C) Monoclonal antibodies (D) Antibodies attached to T-Lymphocytes

A. Semisynthetic antibodies

B. Synthetic antibodies

C. Monoclonal antibodies

D. Antibodies attached to T-lymphocytes.

Answer: C

Watch Video Solution

120. Percentage of SCID cases having adenosine deaminase deficiency

A. 0.15

B. 0.25

C. 0.45

D. 0.62

Answer: A

Watch Video Solution

121. Which is not formed in deficiency of ADA

A. Purine metabolism for T-lymphocyte functioning

B. Monocytes

C. Macrophages

D. Both (B) and (C)

Answer: A

Watch Video Solution

122. Which is diagnosed in southern blotting

A. Antigen

B. Antibodies

C. RNA

D. DNA

Answer: D

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Section F Multiple Choice Questions Mcqs Asked In Competitive Exam

1. Golden rice is enriched in

A. β-carotene

B. Lysine

C. Vitamin C

D. Iron

Answer: A

 Watch Video Solution

2. Smallest protein produced by vertebrates naturally in response to viral attack

A. Antitoxin

B. Antibiotics

C. Antigens

D. Interferons

Answer: D

Watch Video Solution

3. To meet the demands of the society, the in-vitro production of large number of plantlets in a short period is practiced in floriculture and horticulture industry today is called as (A) Somaclonal variation (B) Hybridoma technology (C) Somatic hybridization (D) Micropropagation

A. Somaclonal variation

B. Hybridoma technology

C. Somatic hybridization

D. Micropropagation

Answer: D

Watch Video Solution

4. The source of Taq polymerase used in PCR technique is a (A) Thermophilic bacteria (B)

Thermophilic fungus (C) Mesophilic bacteria (D) Mesophilic fungus

A. Thermophilic bacteria

B. Thermophilic fungus

C. Mesophilic bacteria

D. Mesophilic fungus

Answer: A

Watch Video Solution

5. Some of the steps involved in the production of Humulin are given below. Choose the correct sequence

I. Synthesis of gene for human insulin artificially

II. Culturing recombinant E.coli in bioreactors

III. Purification of Humulin

IV. Insertion of human insulin gene into plasmid

V. Introduction of recombinant plasmid into E.coli

VI. Extraction of recombinant gene product from E.coli.

A. I, II, IV, III, V, VI

B. I,III, V, VI,II,IV

C. I, IV, V, II, VI, III

D. III, V, II, I, VI, IV

Answer: C

 Watch Video Solution

6. Transgenic plants are produced by

A. Introduction of foreign gene

B. Inducing gene mutation

C. Deleting sex chromosomes

D. Inducing gene mutation

Answer: A

 Watch Video Solution

7. The technique of transferring DNA fragment separated on agarose gel to a synthetic membrane like nitrocellulose is known as

A. Northern blotting

B. Southern blotting

C. Western blotting

D. Dot blotting

Answer: B

Watch Video Solution

8. Microinjection of desired genes into fertilized eggs results in (A) Cloned animals (B) free martins (C) Transgenic animals (D) Recombinant mammals

A. Cloned animals

B. Free martins

C. Transgenic animals

D. Recombinant mammals

Answer: C

 Watch Video Solution

9. ELISA is used to detect viruses where the key reagent is (A) Alkaline phosphatase (B) Catalse (C) DNA probe (C) RNase

A. Alkaline phosphatase

B. Catalase

C. DNA probe

D. RNase

Answer: A

Watch Video Solution

10. The transgenic animals are those which have

A. Foreign RNA in its cells

B. Foreign DNA in some its cells

C. Foreign DNA in all its cells

D. Both A and B

Answer: C


Watch Video Solution

11. Electroporation procedure involves

A. Fast passage of food through sieve pores in phloem elements with the help of electric stimulation.

B. Opening of stomatal pores during night by artificial light

C. Making transient pores in the cell membrane to introduce gene construct.

D. Purification of saline water with the help of membrane system.

Answer: C

 Watch Video Solution

12. What is the source of EcoRI ?

A. E coli R I

B. E. coli RI 13

C. E.coli RY 13

D. E.coli RX 13

Answer: C

Watch Video Solution

13. What is plasmid ? (A) Bacterial linear double stranded DNA (B) Extrachromosomal linear RNA (C) Extrachromosomal circular DNA (D) Autonomously replicating circular DNA

A. Bacterial, linear, dsDNA

B. Extrachromosomal linear RNA.

C. Extrachromosomal circular ds DNA.

D. Autonomously replicating circular RNA.

Answer: C

Watch Video Solution

14. A set of bacterial clones, each containing a plasmid or phage, is called as (A) Gene library (B) Gene pool (C) Genophore (D) Genome

A. Gene library

B. Gene pool

C. Genophore

D. Genome

Answer: A

 Watch Video Solution

15. Which one of the following pairs of terms / names means one and the same meaning ? (A) Gene pool - genome (B) Codon - gene (C)

Cistron - triplet (D) DNA fingerprinting - DNA profiling

A. Gene pool-genome

B. Codon-gene

C. Cistron-triplet

D. DNA fingerprinting-DNA profiling

Answer: D

Watch Video Solution

16. The molecular structure of insulin was first describe by (A) Korenberg (C) Sanger (C) Swaminathan (D) Richardson

A. Korenberg

B. Sanger

C. Swaminathan

D. Richardson

Answer: B

 Watch Video Solution

17. The rights given to a person over the creation of their mind is (A) Right of admission (B) Intelligent personality (C) Intellectual property (D) Intelligent proprietors

A. Right of admission

B. Intelligent personality

C. Intellectual property

D. Intelligent proprietors

Answer: C

 Watch Video Solution

18. In which of the following , widespread nematode infection is observed (A) Leaves (B) Stem (C) Roots (D) Flowers

A. Leaves

B. Stem

C. Roots

D. Flowers

Answer: C

Watch Video Solution

19. Maize hybrids have been developed for higher amount of (A) Methionine (B) Lysine (C) Leucine (D) Cysteine

A. Methionine

B. Lysine

C. Leucine

D. Cysteine

Answer: B

Watch Video Solution

20. Salt tolerant transgenic plants have been developed for (A) Brinjal (B) Potato (C) Tomato (D) Grapes

A. Brinjal

B. Potato

C. Tomato

D. Grapes

Answer: C

Watch Video Solution

21. Maturation of genetically engineered proinsulin into insulin takes place after (A) Joining of C - peptide (B) Removal of C - peptide (C) Removal of disulfide bridge (D) Addition of disulfide bridge

A. Joining of C-Peptide

B. Removal of C-Peptide

C. Removal of disulphide bridge

D. Addition of disulphide bridge

Answer: B

Watch Video Solution

22. Pentadiplandra brazzeana, the source of sweetest protein, is found in (A) Srilanka (B) Africa (C) Arabia (D) Australia

A. Srilanka

B. Africa

C. Arabia

D. Australia

Answer: B

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23. The world intellectual property day" is observed on (A) FEB, 29 (B) APRIL, 26 (C) JUNE, 30 (D) SEP, 5

A. FEB, 29

B. APRIL, 26

C. JUNE, 30

D. SEP, 5

Answer: B

Watch Video Solution

24. This is not GMO

A. Golden rice

B. Tracy

C. Dolly

D. Bt Brinjal

Answer: B

Watch Video Solution

25. Which of the following is correct with reference to genetically modified sugar production by America ?

A. Obtained patent of bacterial germplasm

B. Brazzein obtained from Gymnemasylvestre is used in maize

C. Protein obtained from lantana plant of Africa is used in maize.

D. Brazzein protein obtained from Africa used in maize.

Answer: D

Watch Video Solution

26. Isolation of Bt gene from bacterium (Bacillus thuringiensis) was taken up in the year

A. 1977

B. 1980

C. 1997

D. 1990

Answer: B

Watch Video Solution

27. The disorder in which both B-lymphocytes and T-lymphocytes are not formed?

A. SCID

B. AIDS

C. Cystic fibrosis

D. Muscular dystrophy

Answer: A

Watch Video Solution

28. Bt - cotton has genes to repel

A. Bacterial pathogens

B. Fungal pathogens

C. Nematodes pathogens

D. Insect pathogens

Answer: D

Watch Video Solution

29. Which of the following is transgenic plant ?

A. Flavr savr

B. Ashbya gossypii

C. Meloidogyne incognitia

D. Gluconobacter oxidans

Answer: A

 Watch Video Solution

30. Which vector is used to replace defective gene in gene therapy ?

A. Cosmid

B. Ri plasmid

C. Ti plasmid

D. Adenovirus

Answer: D

Watch Video Solution

31. RNA interference is essential for

A. Cell defence

B. Cell proliferation

C. Cell differentiation

D. Micropropagation

Answer: A

Watch Video Solution

32. One of the a dvantage of developing transgenicmice is that it is useful

A. To study vaccine safety

B. In producing new varieties of mice

C. In developing a show piece example

D. In gene targeting

Answer: A

 Watch Video Solution

33. Somaclonal variation appears in

A. Organisms produced through somatic hybridization

B. Plants growing in polluted area.

C. Apomictic plants

D. Tissue culture raised plants.

Answer: D

Watch Video Solution

34. Golden rice is a transgenic crop of the future with the following improved tralt:

A. insect resistance

B. high lysine (essential amino acid) content

C. high protein content

D. high vitamin - A content.

Answer: D

Watch Video Solution

35. Bacillus thuringiensis (Bt) strains have been used for designing novel

A. Biofertilizers

B. Bio-metallurgical techniques

C. Bio-mineralization processes

D. Bioinsecticidal plants.

Answer: D

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36. Production of a human protein in bacteria by genetic engineering is possible because (A) The human chromosome can replicate in

bacterial cell (B) The mechanism of gene regulation is identical in humans and bacteria (C) Bacterial cell can carryout the RNA splicing reactions (D) The genetic code is universal.

A. The human chromosome can replicate in bacterial cell

B. The mechanism of generegulation is identicalin humans and bacteria

C. Bacterial cell can carryout the RNA splicing reactions

D. The genetic code is universal.

Answer: D

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37. Golden rice is a promising transgenic crop. When released for cultivation, it will help in (A) producing a petrol-like fuel from rice (B) alleviation of vitamin A deficiency (C) pest resistance (D) herbicide tolerance

A. producing a petrol-like fuel from rice

B. alleviation of vitamin A deficiency

C. pestresistance

D. herbicide tolerance

Answer: B

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38. Two microbes found to be very useful in genetic engineering are (A) crown gall bacterium and caenorhabditis elegans. (B) Escherichia coli and Agrobacterium tumefaciens (C) Vibrio cholerae and a tailed

bacteriophage (D) Diplococcus sp. and Pseudomonas sp.

A. crown gall bacterium and caenorhabditis elegans.

B. Escherichia coli and Agrobacterium tumefaciens

C. Vibrio cholerae and a tailed bacteriophage

D. Diplococcus sp. and Pseudomonas sp.

Answer: B

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39. What is antisense technology ?

A. When apiece of RNA that is complementary insequence is used to stop expression of a specific gene.

B. RNA polymerase producing DNA.

C. A cell displayinga foreign antigen used for synthesis of antigens.

D. Production of somaclonal variants in tissue cultures.

Answer: A

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40. Cry-I endotoxins obtained from Bacillus thuringiensis are effective against

A. nematodes

B. bollworms

C. mosquitoes

D. flies

Answer: B

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41. Transgenic food crop which may help in solving the problem of night blindness in developing countries is

A. Bt soybean

B. Golden rice

C. flavr savr tomato

D. starlink maize

Answer: B

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42. Human insulin is being commercially produced from a transgenic species of (A) Rhizobium (B) Saccharomyces (C) Escherichia (D) Mycobacterium

A. Rhizobium

B. Saccharomyces

C. Escherichia

D. Mycobacterium

Answer: B

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43. Which one of the following is commonly used in transfer of foreign DNA into crop plants ? (A) Meloidogyne incognitia (B)

Agrobacterium tumefaciens (C) Penicillium expansum (D) Trichoderma harzianum

A. Meloidogyne incognitia

B. Agrobacterium tumefaciens

C. Penicillium expansum

D. Trichoderma harzianum

Answer: B

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44. What is true about Bt toxin ? (A) Bt protein exists as active toxin in the Bacillus. (B) The activated toxin enters the ovaries of the pest to sterilize it and thus prevent its multiplication. (C) The concerned Bacillus has antitoxins. (D) The inactive protoxin gets converted into active form in the insect gut.

A. Bt protein exists as active toxin in the Bacillus.

B. The activated toxin enters the ovaries of the pest to sterilise it and thus prevent its multiplication.

C. The concerned Bacillus has antitoxins.

D. The inactive protoxin gets converted into active form in the insect gut. Teen

Answer: D

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45. Which one of the following pairs is wrongly matched ?

A. Alcohol - nitrogenase

B. Fruit juice - pectinase

C. Textile - amylase

D. Detergents - lipase

Answer: A

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46. 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: A

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47. Bacillus thuringiensis (Bt) strains have been used for designing novel

A. insecticide

B. agent for production of dairy products

C. source of industrial enzyme

D. indicator of water pollution

Answer: A

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48. The genetically-modified (GM) brinjal in India has been developed for

A. insect resistance

B. enhancing shelf life

C. enhancing mineral content

D. Droughtresistance

Answer: A

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49. Cyanogen bromide is used in

A. Genetic fingerprinting

B. Tissue culture

C. Synthesis of humulin

D. Hybridoma technology

Answer: C

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50. The gene that encodes for Bt protein, specific for cotton bollworm is (A) CryIAC (B) CryllAbc (C) CryllACE (D) CryIABI

A. CryIAC

B. CryllAbc

C. CryllACE

D. CryIABI

Answer: A

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51. cells obtained from cancerous tumours are known as the (A) Hybridoma (B) Lymphocytes (C) Monoclonal cells (D) Myeloma

A. Hybridoma

B. Lymphocytes

C. Monoclonal cells

D. Myeloma

Answer: D

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52. Product of biotechnology is (A) Transgenic crop (B) Biofertilizer (C) Humulin (D) All of these

A. Transgenic crop

B. Biofertilizer

C. Humulin

D. All of these

Answer: D

Watch Video Solution

53. Which of the technique of recombinant insulin production uses insertion of genes for alpha and beta polypeptides in the plasmid by the sides of (A) Antibiotic resistance genes (B) lac-Z promoter gene (C) beta galactosidase gene (D) Ori

A. antibiotic resistance genes

B. lac-Z promoter gene

C. beta galactosidase gene

D. Ori

Answer: C

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54. Which is used to promote growth of new blood vessels, thus helping in wound healing (A) Humulin (B) TPA (C) TGF-β (D) α 1 antitrypsin

A. Humulin

B. TPA

C. TGF-β

D. α 1 antitrypsin

Answer: C

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55. Which one is correct regarding genetically engineered insulin using E.coli (A) difficulty in purifying (B) obtained in large unlimited quantities (C) possibility of transmission of

animal diseases (D) insulin obtained varies in chemical structure

A. difficulty in purifying

B. obtained in large unlimited quantities

C. possibility of transmission of animal diseases

D. insulin obtained varies in chemical structure

Answer: B

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56. 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 which produces high fat milk for making ghee (D) Animals like bulls for farm work as they have super power.

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 which produces high fat milk for making ghee

D. Animals like bulls for farm work as they have super power.

Answer: A

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57. Some of the characteristics of Bt-cotton are (A) Long fiber and resistance to aphids (B) Medium yield, long fiber and resistance to beetle pests. (C) High yield and production of toxic protein crystals which kill dipteran pests (D) High yield and resistance to boll worms

A. long fibre and resistance to aphids

B. medium yield, long fibre and resistance to beetle pests.

C. high yield and production of toxic protein crystals which kill dipteran pests

D. high yield and resistance to boll worms

Answer: D

Watch Video Solution

58. Silencing of mRNA has been used in producing transgenic plants resistant to (A) Bollworms (B) Nematodes (C) White rusts (D) Bacterial blights

A. bollworms

B. nematodes

C. white rusts

D. bacterial blights

Answer: B

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59. An improved variety of transgenic basmati rice (A) does not require chemical fertilizers and growth hormones (B) gives high yield and

is rich in vitamin A (C) is completely resistant to all insect pests and diseases of paddy (D) gives high yield but has no characteristic aroma.

A. does not require chemical fertilizers and growth hormones

B. gives high yield and is rich in vitamin A

C. is completly resistant to all insect pests and diseases of paddy

D. gives high yield but has no characteristic aroma.

Answer: B

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60. Read the following four statements (A-D) about certain mistake in two of them.

(a) The first transgenic buffalo, Rosie produced milk which was human alpha - lactalbumin enriched.

(b) Restriction enzymes are used in isolation of DNA from other macromolecules.

(c) Downstreaming processing is one of the

steps of rDNA technology

(d) Disarmed pathogen vectors are also used in transfer of rDNA into the host. (A) b & c (B) c & d (C) a & c (D) a & b

A. b&c

B. c&d

C. a & c

D. a & b

Answer: D

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61. Which one of the following is now being commercially produced by biotechnological procedures ? (A) Nicotine (B) Morphine (C) Quinine (D) Insulin

A. Nicotine

B. Morphine

C. Quinine

D. Insulin

Answer: D

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62. The most common substrate used in distilleries for the production of ethanol is (A) Corn meal (B) Soya meal (C) Ground gram (D) Molasses

A. corn meal

B. soya meal

C. groundgram

D. molasses

Answer: D

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63. Maximum number of existing transgenic animals is of (A) Fish (B) Mice (C) Cow (D) Pig

A. Fish

B. Mice

C. Cow

D. Pig

Answer: B

Watch Video Solution

64. The process of RNA interference (RNAi) has been used in the development of plants resistant to

A. Nematodes

B. Fungi

C. Viruses

D. Insects

Answer: A

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65. Continuous addition of sugars in 'fed batch' fermentation is done to

A. Produce methane

B. Obtain antibiotics

C. Purify enzymes

D. Degrade sewage

Answer: C

Watch Video Solution

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

A. Flavr Savr' tomato

B. Canolla

C. Golden rice

D. Bt-Brinjal

Answer: C

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

A. penicillin

B. streptokinase

C. cyclosporin-A

D. statins

Answer: B

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68. Tobacco plants resistant to a nematode have been developed by the introduction of DNA that produces (in the host cells)

A. both sense and anti-sense RNA

B. a particular hormone

C. an antifeedant

D. a toxic protein.

Answer: A

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69. The first clinical genetherapy was given for treating

A. Diabetes mellitus

B. Chicken pox

C. Rheumatoid arthritis

D. Adenosine deaminase deficiency

Answer: D

70. Bacillus thuringiensis forms protein crystals which contain insecticidal protein. This protein

A. binds with epithelial cells of midgut of the insect pest ultimately killing it

B. is coded by several genes including the gene cry

C. is activated by acid pH of the foregut of the insect pest

D. does not kill the carrier bacterium which is itself resistant to this toxin.

Answer: A

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71. Basic principle of developing transgenic plants and animals is to introduce the gene of interest into the nucleus of

A. Body cell

B. Vegetative cell

C. Germ cell

D. Somatic cell

Answer: C

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72. Genetic engineering has helped in the production of

A. Thyroxine

B. Insulin

C. Parathyroid hormone

D. Epinephrine

Answer: B

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73. Genetically engineered microorganism used successfully in bioremediation of oil spills in oceans is a species of

A. Trichoderma

B. Xanthomonas

C. Pseudomonas

D. Bacillus thuringiensis

Answer: C

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74. Which of the following is not used as bioweapon ?

A. Bacillus anthracis

B. Botulinum toxin

C. Bacillus thuringiensis

D. Small pox

Answer: C

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

A. Maize

B. Cotton

C. Brinjal

D. Soyabean

Answer: B

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76. Commonly used vectors for human genome sequencing are

A. T-DNA

B. BAC and YAC

C. Expression vectors

D. T/A cloning vectors

Answer: B

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

A. insulin

B. estrogen

C. thyroxin

D. progesterone

Answer: A

Watch Video Solution

78. The introduction of tDNA into plants involves

A. infection of the plant by Agrobacterium tumefaciens

B. altering the pH of soil, heat-shocking the plants

C. exposing the plants to cold for a brief period

D. allowing the plant roots to stand in water

Answer: A

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

A. vitamin - B

B. vitamin - C

C. omega-3

D. vitamin - A

Answer: D

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80. Which kind of therapy was given in 1990 to a four-year-old girl with Adenosine Deaminase (ADA) deficiency? (A) gene therapy (B) Chemotherapy (C) Immunotherapy (D) Radiation therapy

A. Gene therapy

B. Chemotherapy

C. Immunotherapy

D. Radiation therapy

Answer: A

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81. Which part of the tobacco plant is infected by Meloidogyne incognita ? (A) Leaf (B) Stem (C) Root (D) Flower

A. Leaf

B. Stem

C. Root

D. Flower

Answer: C

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82. The two polypeptides of human insulin are linked together by (A) Phosphodiester bonds (B) Covalent bonds (C) Disulphide bridges (D) Hydrogen bonds

A. phosphodiester bonds

B. covalent bonds

C. disulphide bridges

D. hydrogen bonds

Answer: C

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83. Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called

A. Bioexploitation

B. Bio-infringement

C. Biodegradation

D. Biopiracy

Answer: D

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84. A 'new' variety of rice was patented by a foreign company, though such varieties have been present in India for a long time. This is related to

A. Basmati

B. Co-667

C. Lerma Rojo

D. Sharbati Sonora

Answer: A

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85. In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is

A. Genetic Engineering Appraisal Committee (GEAC)

B. Indian Council of Medical Research (ICMR)

C. Research Committee on Genetic Manipulation (RCGM)

D. Council for Scientific and Industrial Research (CSIR)

Answer: A

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86. Which of the following in true for Golden rice ?

A. It is Vitamin A enriched, with a gene from daffodil

B. It is pest resistant, with a gene from Bacillus thuringiensis

C. It is drought tolerant, developed using Agrobacterium vector

D. It has yellow grains, because of a gene introduced from a primitive variety of rice

Answer: A

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87. Which of the following can be used as a biocontrol agent in the treatment of plant disease ?

A. Trichoderma

B. Chlorella

C. Anabaena

D. Lactobacillus

Answer: A

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88. Which of the following features of genetic code does allow bacteria to produce human insulin by recombinant DNA technology ? (A)

Genetic code is not ambiguous (B) Genetic code is redundant (C) Genetic code is nearly universal (D) Genetic code is specific

A. Genetic code is not ambiguous

B. Genetic code is redundant

C. Genetic code is nearly universal

D. Genetic code is specific

Answer: C

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89. What triggers activation of protoxin to active Bt toxin of Bacillus thuringiensis in boll worm? (A) Body temperature (B) Moist surface of midgut (C) Alkaline pH of gut (D) Acidic pH of stomach

A. Body temperature

B. Moist surface of midgut

C. Alkaline pH of gut

D. Acidic pH of stomach

Answer: C

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90. Select the correct group of biocontrol agents. (A) Bacillus thuringiensis, Tobacco mosaic virus, Aphids (B) Trichoderma, Baculovirus, Bacillus thuringiensis (C) Oscillatoria, Rhizobium, Trichoderma (D) Nostoc, Azospirillium, Nucleopolyhedrovirus

A. Bacillus thuringiensis, Tobacco mosaic virus, Aphids

B. Trichoderma, Baculovirus, Bacillus thuringiensis

C. Oscillatoria, Rhizobium, Trichoderma

D. Nostoc, Azospirillium, Nucleopolyhedrovirus

Answer: B

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