BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

BIOTECHNOLOGY AND ITS APPLICATIONS

Checkpoint 22 1

1. Which of the following depicits white biotenchnology ?

A. Agricultural processes

B. Industrial processes

C. Medical processes

D. All of these

Answer: B

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2. What is a GM crop ?

A. Genetically Modified crop

B. Genic Mutated crop

C. Genetically Mutated crop

D. None of the above

Answer: A

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3. A transgene is

A. foreign gene

B. native gene

C. mutated gne

D. Both (a) and (c)

Answer: A

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4. Hirudin protein is found in

A. leech

B. humans

C. plants

D. None of these

Answer: A

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5. Hiruding gene was first transferred into .....with the help of recombinant DNA technology

A. Oryza sativa

B. Brassica napus

C. wheat

D. maize

Answer: B

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6. Which of the following is an insecticidal protein produced by Bacillus thuringiensis ?

A. Rop

B. Hir

C. Cry

D. Both (a) and (c)

Answer: C

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7. Gene cry IAb controls

A. corn borer

B. cotton bollworm

C. europain bollworm

D. corn bollworm

Answer: A

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8. Which of the following is a variety genetically engineered for masking the expression of native gene ?

A. Bt cotton

B. Flvr savr tomato

C. Golden rice

D. Both (a) and (c)

Answer: B

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9. Expression of which enzyme is blocked in Flavr savr tomato ?

A. Carotene satarase

B. Colepterons

C. Diacetyl transferase

D. polygalacturonase

Answer: D

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10. Bt cotton is resistant against

A. lepidopterans

B. colepterans

C. dipterans

D. All of these

Answer: D

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11. In Golden rice phytoene synthase was transferred from

A. Erwinia

B. Narcissus

C. Oryza sativa

D. Both (a) and (c)

Answer: B

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12. Which of the following enzyme was transferred into golden rice from Erwini uredovora ?

A. Polygalacturonase

B. Diacetyl transferase

C. Phytoene synthase

D. Carotene desaturase

Answer: D

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13. Nematode Meloidgyne incognitia infects the ....of tobacco plants.

A. leaves

B. flowers

C. roots

D. inflorescence

Answer: C

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14. Which of the following plants have been genetically engineered to provide herbicide tolerance ?

A. Soybean

B. Maize

C. Apple

D. Both (a) and (b)

Answer: D

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15. Which of the following is a disadvantages of GM food ?

A. They may cause allergies

B. They may cause toxicaity

C. GM food production is expensive

D. All of the above

Answer: D

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Checkpoint 22 2

1. Which of the following has been produced via biotechnology ?

A. Hepatitis - B vaccine `

B. Factor - VIII

C. α - glucosidase

D. All of these

Answer: D

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2. The disadvantage of insulin from slaughtered pig is

A. it is not effective

B. it is toxic

C. it causes allergies

D. it is difficult to extract

Answer: C

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3. Presence of which of the following in proinsulin makes it different from insulin

A. A - peptide

B. B - peptide

C. C - peptide

D. disulphide bonds

Answer: C

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4. The company which developed humanb insulin is

A. eli lily

B. calgene

C. caltech

D. genetech

Answer: A

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5. In which year the first genetically engineered product was approved for medical use ?

A. 1972

B. 1982

C. 1992

D. 1973

Answer: B

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6. hGH extracted form dead human may result into gentic disease known as

A. severe combined immuno deficiency disease

B. pituitary dwarfism

C. creutzfeldt jacob

D. cystic fibrosis

Answer: C

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7. α - 1 antitrypsin is a human protein that inhibits

A. elastase

B. amylase

C. trypsin

D. Both (a) and (c)

Answer: D

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8. To make AAT extracted the AAT gene was coupled to a promoter for protein

A. globolin

B. α - lactoglobulin

C. β - lactoglobulin

D. None of these

Answer: C

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9. Which of the following is the first sheep to produce milk with AAT ?

A. Dolly

B. Molly

C. Noori

D. Tracy

Answer: D

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10. The first clinical gene therapy was given in the year

A. 1990

B. 1992

C. 1972

D. 2001

Answer: A

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11. The complementary DNA of ADA was inserted in

A. leucocytes

B. lymphocytes

C. liver cells

D. myeloma cells

Answer: B

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12. The ions which cannot cross the cell membrane due to cystic fibrosis are

A. Cl^- ions

B. Na^{2+} ions

C. H^+ ions

D. Mg^{2+} ions

Answer: A

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13. In which of following animal lactoferein gene has been inserted ?

A. Sheep

B. Cows

C. Bull

D. All of these

Answer: C

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14. Recombinant DNA technology is used in the production of .....vaccines.

A. first generation vaccine

B. second generation vaccine

C. third generation vaccine

D. Both (b) and (c)

Answer: D

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15. Hybridomas are produced by the fusion of

A. liver cells and myeloma cells

B. B - cells and myeloma cells

C. liver and β - cells

D. leucocytes and myelome cells

Answer: B

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Checkpoint 22 3

1. Biopatents are usually awarded for the discovery of

A. new cell lines

B. new DNA sequences

C. GM strains

D. All of these

Answer: D

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2. In which year a USA lab granted a patent to the medical centre, University of Missisippi for the use of turmeric ?

A. 1959

B. 1995

C. 1986

D. 1997

Answer: B

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3. Indian basmati was patented by us government as

A. gene tech

B. basmati gene

C. rice tech

D. Both (a) and (c)

Answer: C

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4. The superbug can be used in .....

A. oil spills

B. water pollution

C. eutrophication

D. air pollution

Answer: A

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5. Exploitation of patent biological resources of a country by another country is known as

A. biopatent

B. biopiracy

C. biowar

D. All of these

Answer: B

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6. The principle patending pirates are

A. US

B. Japan

C. German

D. All of these

Answer: D

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7. Brazzein is produced by

A. Pentadiplandra Brazzeana

B. Curcuma longa

C. Azadirachta indica

D. None of the above

Answer: A

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8. Biological weapons convention and treaty given in

A. 1972

B. 1942

C. 1932

D. 1955

Answer: A

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9. Which of these can be a defence against bioweapon ?

A. Protective shelter

B. Immunisation

C. Gas mask

D. All of these

Answer: D

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10. A branch of ethics, philosophy and social commentary that deals with the biological sciences and their impact on society is known as

A. bioethics

B. biopatent

C. biopiracy

D. biowar

Answer: A

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Chapter Exercises A Taking It Together

1. The first clinical gene therapy was done for the treatment of

A. AIDS

B. cancer

C. cystic fibrosis

D. SCID

Answer: D

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2. The antisense construct (RNA) of 'ACC' synthase gene was used to construct

A. Golden rice

B. Flavr savr tomato

C. Bt cotton

D. Bt maize

Answer: B

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3. α - 1 antirypsin is

A. an antacid

B. an enzyme

C. used to treat arthritis

D. used to treat emphysema

Answer: B

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4. An artificial seed is raised from

A. meristem

B. root tip

C. somatic embryo

D. immature seed

Answer: C

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5. In RNAi, genes are silenced using

A. ssDNA

B. dsDNA

C. dsRNA

D. ssRNA

Answer: B

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6. Which type of rice is high in vitamin -A ?

A. Super rice

B. Golden rice

C. Basmati rice

D. Indica rice

Answer: B

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

A. erythrocytes

B. lymphocytes

C. blood plasma

D. ostecytes

Answer: B

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8. Source of genes for high vitamin content in Golden rice is

A. Daffodalis

B. Erwinia

C. Both (a) and (b)

D. None of these

Answer: C

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9. A protoxin is:

A. a primitive toxin

B. a denatured toxin

C. toxin produced by Protozoa

D. inactive toxin

Answer: D

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10. Rice polishing leads to destruction of

A. vitamin - B_1

B. vitamin - B_2

C. vitamin - C

D. vitamin - D

Answer: A

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11. Which one is known as 'Superbug' ?

A. Pseudomonas putida

B. E. coli

C. Aspergillus niger

D. Acetobacter aceti

Answer: A

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12. Which of the following crops till now has been genetically modified ?

A. Tobacco

B. Tomato

C. Cotton

D. All of these

Answer: D

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13. A plant expressing a gene from another organisms is

A. transgenic

B. clone

C. transformed

D. somaclonal variant

Answer: A

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14. First transgenic crop is

A. cotton

B. pea

C. tobacco

D. flax

Answer: A

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15. Which Bt crop is recently recommended for cultivation in India?

A. Cotton

B. Wheat

C. Soybean

D. Rice

Answer: C

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16. Among the following, which chemical is used most commonly in cryopreservation as crypretectant ?

A. DMSO

B. Glycine

C. Glycerol

D. Mannitol

Answer: A

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17. Which of the following transgenic human protein product has been used to treat emphysema ?

A. $\alpha - 1 -$ antitrypsin

B. $\alpha - 1 -$ globulin

C. Cry IAB protein

D. Cry IAc protein

Answer: A

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18. Which gene was introduced in the first transgenic cow?

A. Human α - lactalbumin

B. $\alpha - 1$ - antitrypsin

C. $\beta -$ - antitrypsin

D. Cry IAc

Answer: A

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19. Yeast cells can be immobilised in

A. silica gel

B. calcium alginate

C. porcelain column

D. encapsulation

Answer: B

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20. First commercially grown genetically engineered food to be granted for human consumption was

A. potato

B. cotton

C. maize

D. tomato

Answer: D

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21. Advantage of GM crops is /are

A. Nutrition

B. Cold tolerance

C. Disease resistnce

D. All of these

Answer: D

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22. Genetically modified tobacoo plant with Bt gene is resistant to

A. Bollworms

B. Hornworms

C. Hookworms

D. Roundworms

Answer: A

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23. Medium used in culturing hybridoma cells is

A. HAT

B. HAP

C. TAP

D. TAC

Answer: A

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24. Out of the following, which is genetically engineered antiviral protein ?

A. Humulin

B. Interferon

C. Fumagillin

D. Griseofulvin

Answer: B

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25. In protoplast fusion which chemical is used

A. DMSO

B. liquid N_2

C. pectinase

D. PEG

Answer: D

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26. Chemofusion and electrofusion are employed in

A. eugenics

B. protoplast fusion

C. cloning

D. mutations

Answer: B

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27. A functional ADA cDNA can be introduced into cells of the patients receiving gene therapy by using vector constituted by

A. E. coli

B. reovirus

C. retrovirus

D. agrobacterium

Answer: C

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28. Which one of the following bacteria has found extensive use in genetic engineering work in plants?

A. Clostridium septicum

B. Xanthomonas citri

C. Bacillus coagulens

D. Agrobacterium tumefacriens

Answer: D

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29. GEAC stands for

A. Genome Engineering Action Committee

B. Ground Environment Action Committee

C. Genetic Engineering Approval Committee

D. Genetic and Environement Approval Committee

Answer: C

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30. 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 these

Answer: C

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31. Which of the following is a second generation vaccine ?

A. DPT

B. Cholera

C. Hepatitis -B

D. None of these

Answer: C

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32. Bt cotton is not

A. a GM plant

B. insect resisdent

C. a bacterial gene expressing system

D. resistant to all pesticides

Answer: D

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33. A bioreactor is

A. fermentation tank

B. culture of bacteria

C. hybridoma

D. culture for synthesis of new chemicals

Answer: A

Watch Video Solution

34. Red biotechnology is applied to

A. agricultural processes

B. medical processes

C. Both (a) and (b)

D. industrial processes

Answer: B

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35. A probe which is a molecule used to locate specific sequence in a mixture of DNA or RNA molecules could be

A. a single - standard RNA

B. a single -standard DNA

C. either RNA or DNA

D. can be ssDNA but not ssRNA

Answer: C

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36. Which of the following is not included under the application of biotechnology ?

A. Genetically modified crops

B. Processed food

C. Wast treatment and energy production

D. None of the above

Answer: D

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37. C-peptide of human insulin is

A. a part of mature insulin molecule

B. responsible for fomation of disulphide bridges

C. removed during maturation of proinsulin to insulin

D. responsible for its biological activity

Answer: C

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38. 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

Answer: C

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39. Biopiracy is

A. the use of biological patent

B. thefts of plants and animals

C. the use of bioresources of a country without proper authorisation

D. Stealing of biological resources.

Answer: C

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40. Production of value added products like nutrition supplements, pharamacceuticals, fuels, etc. using transgenic crop is called

A. genetic farming

B. molecular farming

C. biotech farming

D. All of the above

Answer: B

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

A. biofertilisers

B. bio - metallurgical techniques

C. bio - mineralisation process

D. bio - insecticidal plants

Answer: D

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42. An important objective of biotechnology in agriculture section is to

A. to produce pest resistant varieties of plants

B. to increase the nitrogen content

C. to decrease the seed number

D. to increase the plant weight

Answer: A

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

A. bioethics

B. biowar

C. biopiracy

D. biopatent

Answer: A

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44. Which Indian plants have either been patented or attempts have been made to patent them by western nations for their commercial use ?

A. Basmati rice

B. Turmeric

C. Neem

D. All of these

Answer: D

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45. Biopatents means

A. right to use an invention

B. right to use biological resources

C. right to use applications

D. right to use processes

Answer: B

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46. Bt toxin genes are isolated from Bacillus thuringiensis and incorporated into crop plants making them insecticidal. The choice of genes depend upon

A. crop plant only

B. targeted pest only

C. Both (a) and (b)

D. neither type of crop nor targeted pest

Answer: C

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47. By the use of biotechnology , in which bacteria production of vitamin $-B_{12}$ has been increased to about 20000 times ?

A. Ashbya gossypii

B. E. coli

C. Pseudomonas denitrificans

D. Propionibacterium shermanii

Answer: A

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48. Silencing of a gene could be achieved through the use of

A. short interfering RNA

B. antisense RNA

C. Both (a) and (b)

D. None of the above

Answer: C

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49. Hybridomas are employed for

A. production of antibiotics

B. treatment of cancer

C. synthesis of monoclonal antibodies

D. alcohol fermentation

Answer: C

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50. Human gene therapy requires

A. gene isolation

B. introduction of DNA into target cells

C. inclusion of promoter sequence

D. All of the above

Answer: D

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51. The slow ripening transgenic tomato was developed in USA by using

A. antisense RNA technology

B. ribozyme technology

C. cosuppression approach

D. transgene silencing approach

Answer: A

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52. Kohler and Milstein developed a method in biotechnology for the production of

A. myelomas

B. steroid conversion

C. monoclonal antibodies

D. immobilised enzymes

Answer: C

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

A. Golden rice

B. Br soybean

C. Flavr savr tomato

D. Starlink maize

Answer: A

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54. Immobilished enzymes are obtained by .....method.

A. entrapment

B. ionic binding

C. cross linking with glutaraldehyde

D. All of the above

Answer: D

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55. Biosensors are

A. enzymes used in industries

B. analytic devices used to monitor the product of biological process.

C. used to detect abnormal toxins in body

D. Both (b) and (c)

Answer: D

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56. Nexia biotechnologies spliced spider genes into the cells of lactating

A. cow

B. sheep

C. goat

D. buffalo

Answer: A

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57. Transgenic animals are developed by

A. introducing foreign gene

B. introducing gene mutations

C. deleting certain chromosomes parts

D. stopping spindle formation

Answer: A

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58. Which of the the following statement is correct ?

A. Bt' in Bt cotton indicates that it is genetically modified organism produced through biotechnology

B. Somatic hybridisation involves fusion of two complete plant cells carrying desired genes

C. The anticogulant hirudin is being produced from transgenic Brassica napus seeds

D. Flavr savr' variety of tomato has enriched the production of ethylene which improves its taste

Answer: C

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59. Which of the following statement is false ?

A. Insulin was originally extracted from pancreas of slaughtered pigs and cattle

B. Animal insulin is difficult obtain.

C. Animal insulin is identical to human insulin

D. Non - human insulin caused some patients to develop allergy

Answer: C

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60. Which of the following is correct ?

A. The proteins encoded by the genes cry IAc and cry IIAb control contton bollworms

B. Proteins encoded by cry IAb controls corn borer

C. Proteins encoded by cry IAc and cry IAb contol flies

D. Both (a) and (b)

Answer: C

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61. Myeloma cells are used in hybridoma technology because

A. they cannot grow in tissue culture

B. they can grow infinitely

C. tey are non - concerous cells

D. they are easily available

Answer: B

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62. Monoclonal antibodies are

A. single parent type that attack many antigens

B. single parent type and attack specific antigen

C. variour parent types and attack may antigens

D. variour parent types and attack single antigen

Answer: B

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63. Monoclonal antibodies are obtained from

A. one parent for one antigen

B. different parents for one antigen

C. one parent for many antigens

D. many parents for many antigens

Answer: A

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64. Why is usually insulin not administered orally to a diabetic patient?

A. Insulin is bitter is taste

B. Insulin is a peptide

C. Insuline will lead to sudden decrease in blood sugar if given orally

D. Insulin leads to peptic ulcar if given orally

Answer: C

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65. A transgenic plant is one in which

A. a gene from another plant is introduced

B. a gene from another organism bacteria is introduced

C. a gene from another organism virus is introduced

D. All of the above

Answer: A

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66. Golden rice is

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 β - carotene

D. wild variety or rice with yellow coloured grains.

Answer: C

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67. Which is not true w.r.t transgenic animals and their contribution to human welfare?

A. Transgenic mice are being tested to ensure safety of polio vaccine

B. Rosies milk contained human gene insulin

C. Transgenic cows produce milk with less fat

D. Transgene sheep grow more wool

Answer: B

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68. Human growth hormone is now produced in large quantities by recombinant DNA, technology. The pregvious source of this hormone, for treating pituitary dwarfs, was

A. chemical laboratories

B. mutant mice

C. human cadavers

D. pig cadavers

Answer: A

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69. Resistance to antibiotics is genetic trait that spreads naturally from one type of bacterium to

A. almost from one type of bacterium to

B. another bacterium of the same strain

C. eukaryotic cells of all types

D. any other cell containing copy DNA

Answer: C

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70. When DNA is transcribed into mRNA, usually the mRNA remains single - standarded but in some cases an RNA can be made that is complementary to the mRNA. This is called .....and its main funcion is to ..... .

A. antisense RNA, block gene expression

B. antisense RNA, amplify mRNA

C. antisense RNA, enhance translation

D. reverse transcription, enhance translation

Answer: A

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Chapter Exercises B Medical Entrances Special Format Questions

1. Consider the following statements.

I. Bt toxin gene has been cloned from the bacteria.

II. Genetic engineering works only on animals and has not yet been successfully used on plants.

III. Strains of Bacillus thuringiensis are used in producing bioinsecticidal plants.

Which of the statements given above are correct ?

A. I and II

B. I and III

C. II and III

D. I, II and III

Answer: B

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2. A parent is granted for

I. an invention

II.an improvement in an earliear invention.

III.process of generating a product.

IV.stains of microorganisms.

A. Only I

B. II and IV

C. I, II and IV

D. All of the above

Answer: C

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3. Which of the following diseases are caused by bioweapon agents ?

I. Smallpox

II. Anthrax

III. Tularemia

IV. Cancer

A. Only I

B. Only II

C. II and IV

D. I, II and III

Answer: D

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4. Consider the following statements.

I. Specific Bt toxin genes have been isolated from Bacillus thuringiensis.

II. Bt toxin in coded by a gene named cry

III. Bt toxin protein exists as inactive protoxins.

Which of the following statements given above are correct ?

A. I, II and III

B. I and II

C. I and III

D. II and III

Answer: A

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5. Bacillus thuringiensis forms the protein crystals, which contains a toxic insecticidal protein. This proein

I. is activated by alkaline pH of the gut of the insect pest.

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

III.does not kill the carrier bacterium which is itself resistance to this toxin.

Which of the statement given above are correct ?

A. I and II

B. I and III

C. II and III

D. I, II and III

Answer: C

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6. Consider the following statements about transgenic tobacco palnt.

I. Transgenic tobacco plants contains a gene from a bacterium, Bacillus thuringiensis.

II. Bt gene is an insecticidal protein which damages the inner lining of the

insects and kills it (insect).

III. The tobacco plants having Bt gene produces their own insecticide.

Which of the statements given above are correct ?

A. I and II

B. I and III

C. II and III

D. I, II and III

Answer: D

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7. Golden rice

I. It is transgenic variety of rice.

II. It contains a good quality of β - carotene (pro - vitamin -A)

IV. The grains of the rice are yellow in colour due to β - carotene. The rice is commonly called golden rice.

Which of the statements given above are correct.

A. I, II and III

B. II, III

C. I, III

D. I, II

Answer: D

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Chapter Exercises Match The Columns

1. Match the following Columns.

	Column I		Column II
$A.$	Virus resistance	1.	2, 4 - D
$B.$	Somatic hybridisation	2.	Coat protein gene
$C.$	Callus culture	3.	PEG
$D.$	Vinagar	4.	cry gene
$E.$	Insect resistance	5.	Fermentation

A.

A	B	C	D	E
3	2	1	4	5

B.

A	B	C	D	E
5	4	2	3	1

C.

A	B	C	D	E
2	3	1	5	4

D.

A	B	C	D	E
1	2	3	4	5

Answer: C

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2. Match the following Columns.

	Column I		Column II
$A.$	Gene therapy	1.	Effort to fix functional gene
$B.$	Humulin	2.	A single - standard DNA or RNA tagged with a
$C.$	Probe	3.	Diagnostic test
$D.$	ELISA	4.	Diabetes

A.

A	B	C	D
1	4	2	3

B.

A	B	C	D
4	2	3	1

C.

A	B	C	D
2	3	1	4

D.

A	B	C	D
3	1	4	2

Answer: A

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3. Match the following Columns.

	Column I		Column II
$A.$	Golden rice	1.	Armyworm
$B.$	Bt toxin	2.	Rich in vitamin - A
$C.$	RNAi	3.	Cry protein
$D.$	Lepidopterans	4.	Gene silencing

A.

A	B	C	D
2	3	4	1

B.

A	B	C	D
3	4	1	2

C.

A	B	C	D
4	1	2	3

D.

A	B	C	D
2	1	3	4

Answer: A

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4. Match the folllowing Columns.

	Column I		Column II
$A.$	Bt tobacco	1.	Vitamin - A
$B.$	Lepidopterans	2.	High yield and pest resisdent
$C.$	Bt cotton	3.	Manduca sexta
$D.$	Golden rice	4.	Tobacco budworm

A. $\begin{matrix} A & B & C & D \\ 3 & 4 & 2 & 1 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 1 & 2 & 4 & 3 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 4 & 2 & 3 & 1 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 3 & 1 & 2 & 4 \end{matrix}$

Answer: A

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Chapter Exercises Assertion And Reason

1. Assertion Transgenic plant production is an application of plant tissue culture.

Reason An organism that contains and express a transgene is called transgenic organism.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

C. Assertion is ture, but Reason is false.

D. Assertion is false, but Reason is true.

Answer: B

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2. Assertion Hirudin is a protein that stimulates blood clotting.

Reason The gene encoding hirudi is transferred into Brassica napus, where hirudin accumulated in seeds.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

C. Assertion is ture, but Reason is false.

D. Assertion is false, but Reason is true.

Answer: D

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3. Assertion A crop expressing a cry gene is usually resistant to a group of insects.

Reason Cry protein produced from Bacillus thuringiensis is toxic to larvae of certain insects.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

C. Assertion is ture, but Reason is false.

D. Assertion is false, but Reason is true.

Answer: A

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4. Assertion Flavr savr a transgenic tomator remains fresh and remains their flavour for long time.

Reason Production of polygalacturonase enzyme, which degrades pectin, was blocked in Flavr savr.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

C. Assertion is ture, but Reason is false.

D. Assertion is false, but Reason is true.

Answer: A

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Chapter Exercises C Medical Entrances Gallery

1. The two polypeptides of human insulin are linked together by

A. phosphodiester bonds

B. covalent bonds

C. disulphide bridges

D. hydrogen bonds

Answer: C

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2. Math the following Columns.

	Column I		Column II
$A.$	Golden rice	1.	Cross breed hybrid
$B.$	IR - 8 rice	2.	Somatic hybrid
$C.$	Himgiri	3.	Semi - dwarf variety
$D.$	Pomato	4.	Genetically modified crop

A. $\begin{matrix} A & B & C & D \\ 4 & 1 & 2 & 3 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 4 & 3 & 1 & 2 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 2 & 3 & 1 & 4 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 1 & 3 & 4 & 2 \end{matrix}$

Answer: B

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3. Hepatitis B vaccine is

A. combined vaccine

B. recombinant antigen vaccine

C. polysaccharide vaccine

D. DNA vaccine

Answer: B

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4. Human insulin is being commercially produced from transgenic species of

A. E. coli

B. Brassica napus

C. Bacillus thuringiensis

D. Agrobacterium

Answer: A

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5. One of the advantages of developing transgenic mice is that it is very 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

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6. Trangenic animals are generally produced for all of the following needs except:

A. testing of chemical safety

B. testing of vaccine safety

C. stimulation of pathogenicity

D. production of pharmacologically important proteins

Answer: C

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7. The clot formation can be prevented by treatmet with _____ in gene therapy:

A. DNAase

B. recombinant vaccine

C. TPA

D. TGF-B

Answer: C

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8. In which field, application of biotechnology occurs

A. biomedicine

B. agriculture

C. environment field

D. All of these

Answer: D

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9. A desirable change in genotype of an organism is obtained by

A. DNA replication

B. protein synthesis

C. rDNA technology

D. mRNA formation

Answer: C

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10. More than 95 % of transgenic animals are

A. rabbits

B. mice

C. fish

D. cows

Answer: B

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11. Select the wrong statement .

A. Human insulin is being commercially produced from a transgenic species of Escherichia coli

B. Genetically modified Bacillus thuringiensis is used as biopesticide on commercial

C. Human protein, α - 1 antitrypsin, is used to treat emphysema

D. Bt toxin genes cry IAc control corn borer

Answer: B

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12. What is the advantage of clinical use of humulin over use of conventional ox or pig insulin ?

A. It does not cause immunological problems

B. It is cheaper for the patient

C. It is produced by E, coli in our intestine

D. There is no advantage

Answer: A

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13. Which one is wrong in relation to transgenic Bt cotton plant

A. Crop yield loss due to attack by Bacillus thuringiensis bacterium is reduced

B. Crop yield loss due to attack by lepidoperan insect pest is reduced

C. Use of chemical insecticides in the cotton field is minimised

D. Better quality cotton is produced.

Answer: A

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14. Antibodies produced by a group of identical B-cells against a single epitope of an antigen is called:

A. polyclonal antibodies

B. monoclonal antibodies

C. antihapten antibodies

D. somaclonal antibodies

Answer: B

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15. Gene therapy has ben successful in curing genetic diseases in laboratory animals through

A. exposure to X - ray to rectify the defective gene

B. replacing the defective gene with a functional gene

C. oral delivery of genes

D. use of therapeutic medicines to rectify the defective genes

Answer: B

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

A. insulin

B. oestrogen

C. thyroxine

D. progeserone

Answer: A

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17. In vitro clonal propagation in plants is characterized by

A. PCR and RAPD

B. Northern blotting

C. electrophoresis and HPLC

D. microscopy

Answer: A

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18. Cry ' gene is obtained from:

A. Agrobacterium tumefaciens

B. Bacillus thuringiensis

C. Rhizobium leguminosarum

D. Rhizobium phaseoli

Answer: B

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19. The inactive protoxin is activated in the gut of the insect by :

A. acidic pH

B. alkaline pH

C. low temperature

D. high temperature

Answer: B

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20. In India, research in genetic modification of organisms and safety issues are controlled by:

A. DBT

B. IARI

C. CSIR

D. GEAC

Answer: D

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21. Which is correct regarding genetically engineered insulin using E.coli ?

A. Difficult to purify

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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22. Ernest chain and Howared Florey's contribution was

A. discovery of streptokinase

B. establishing the potential of penicillin as an effective antibiotic

C. discovery of the DNA sequences

D. isolating the bacterial plasmid

Answer: B

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23. Insect pest resistant Bt-cotton plant was developed using:

A. somaclonal variation

B. micropropagation

C. somatic hybridisation

D. transgenic technology

Answer: D

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24. The strategy used to prevent the nematode infection in the roots of tobacoo plant in called:

A. use of agrochemicals

B. Bt toxin gene

C. gene mutation

D. RNA interference

Answer: D

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25. Name the nematode which infects the roots of tobacco plants

A. Bacillus thuringiensis

B. cry IAc

C. Meloidegyne incognita

D. None of these

Answer: C

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26. A 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 tomatoes

D. Starlink maize

Answer: B

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27. Match the following Columns.

	Column I		Column II
$A.$	RNAi	1.	cotton bollworms
$B.$	ELISA	2.	Early detection of HIV
$C.$	PCR	4.	Antigen - antibody
		5.	Corn borer

A. $\begin{matrix} A & B & C & D \\ 3 & 4 & 2 & 5 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 4 & 3 & 1 & 5 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 2 & 3 & 5 & 4 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 5 & 1 & 3 & 2 \end{matrix}$

Answer: A

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28. RNA interference which is employed in making tobacco plant resistant to Meloidegyne incognita is essentially involved in preventing the process of:

A. translation of mRNA

B. transcription

C. replication of DNA

D. splicing of hnRNA

Answer: A

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29. ADA deficiency results in

A. increased risk of infertility

B. inability of the immune system to function normally

C. chromosomal disorders

D. decrease in the yield of crop plants

Answer: B

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30. Select the correct option for the given statements I, II and III.

I. A transgenic cow, Rosie produced human protein - enriched milk, which was nutritionally more balanced product for human babies than natural cow milk.

II. Milk produced by transgenic cow, Rosie contain 2.4 gm protein /L.

III. In the above mentioned milk in II statement, alpha- lactalbumin is present.

A. Statements I, II , III are true and statement III does not give correct explanation of I

B. Statements I, II, III are true and statement III gives correct explanation for I

C. Statements I and II are true, Statement III is false.

D. Statement I and II are false, Statement III is true

Answer: B

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31. Bt-cotton is resistant to:

A. insects

B. herbicides

C. salt resistant

D. drought resistant

Answer: A

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32. Which one of the following bacteria is used for production of transgenic plants ?

A. Escherichia coli

B. Pseudomonas

C. Staphylococcus aureus

D. Agrobacterium tumefaciens

Answer: D

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33. Bt brinijal an axample of transgenic crops. In this Bt refers to

A. Bacillus tuberculosis

B. Biotechnology

C. β- carotene

D. Bacillus thuringiensis

Answer: D

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34. α - 1 antitrypsin (AAT) protein is used to treat which disease ?

A. Dwarfism

B. CJD

C. Both (a) and (b)

D. Emphysema

Answer: D

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35. Product of biotechnology is

A. transgenic crops (GM crops)

B. humulin

C. biofertiliser

D. All of the above

Answer: D

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36. Human insulin is being commercially produced from a transgenic species of

A. Escherichia

B. Mycobacterium

C. Rhizbium

D. Saccharomyces

Answer: A

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37. Medical gene product used to treat cystic fibrosis is

A. α - glucosidase

B. hGH

C. BST

D. DNAase

Answer: D

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38. Cultivation of Bt Cotton has been much in the news . The prefix "Bt" means

A. Barium - treated cotton seeds

B. Bigger thread variety of cotton with better tensile strength

C. produced by biotechnology using restriction enzymes and ligases

D. carrying an endotoxin gene from Bacillus thurigiensis

Answer: D

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39. Which of the following is obtained from genetic engineering?

A. Haemoglobin

B. Glucose

C. Golden rice

D. None of these

Answer: C

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40. Which is used in production of insulin by genetic engineering ?

A. Escherichia coli

B. Mycobacterium

C. Both (a) and (b)

D. None of the above

Answer: A

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41. A hybrid where the cytoplasm of two parent cells are fused by retaining only one parental nucleus is called

A. asymmetric somatic hybrid

B. cybrid

C. an interbreed

D. symmetric somatic hybrid

Answer: B

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42. Match List I with List II and select the correct option:

	List I		List II
A	Bacillus thuringiensis	1	Production of chitinases
B	Rhizobium meliloti	2	Scavenging of oil spills
C	Escherichia coli	3	Incorporation of nif-gene
D	Pseudomonas putida	4	Production of Bt toxin
E	Trichoderma	5	Production of human insulin

A.

A	B	C	D	E
2	4	1	5	3

B.

A	B	C	D	E
2	4	5	1	3

C.

A	B	C	D	E
4	3	5	2	1

D.

A	B	C	D	E
5	4	3	1	2

Answer: C

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43. Hybridomas are the fusion product of :

A. normal antibody producing cell with myeloma

B. abnormal antibody producing cell with myeloma

C. sex cells with myeloma

D. bone cells with myeloma

Answer: A

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44. Bt toxin is obtained from:

A. prokaryotes

B. eukaryotes

C. Both (a) and (b)

D. None of these

Answer: A

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45. First hormone produced artificially by culturing bacteria is

A. insulin

B. thyroxine

C. testosterone

D. adrenaline

Answer: A

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46. Find out the pairs which are correctly matched

a.	Cyanobacteria	1.	Biopesticide
b.	Mycorrhiza	2.	Solubilisation of phosphate
c.	Bacillus thuringiensis	3.	Cry protein
d.	single cell protein	4.	Rhizobia

A. I and II

B. II and III

C. III and IV

D. I and III

Answer: D

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