



BIOLOGY

BOOKS - CHETANA BIOLOGY (MARATHI ENGLISH)

Cell Biology and Biotechnology

Exercise

1. Stem cells preserved in sterile vials are kept in liquid nitrogen at _____ to _____.

A. $-135^{\circ}C \rightarrow -190^{\circ}C$

B. $-125^{\circ}C \rightarrow -150^{\circ}C$

C. $135^{\circ}C \rightarrow 190^{\circ}C$

D. $133^{\circ}C \rightarrow 187^{\circ}C$

Answer:



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2. Indian Agriculture Research institute is at

_____.

A. Solarpur

B. Bengalaru

C. Delhi

D. Pune

Answer:



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3. In Nil-Kranti Mission - 2016 program, government is offering subsidies of _____.

A. 15% - 20%

B. 50% - 100%

C. 75% - 77%

D. 35% - 50%

Answer:



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4. Adulsa is taken to cure _____.

A. cough

B. fever

C. dysentery

D. vomiting

Answer:



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5. Pesticides are infact a type of

A. fertilizer

B. poison

C. manner

D. organic product

Answer:



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6. In soil-less farming i.e., hydroponics _____ chemical fertilizer are used.

A. solid

B. liquid

C. gaseous

D. plasma

Answer:



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7. National pomegranate Research Institute is located at _____.

A. Solarpur

B. Pune

C. Nagpur

D. New Delhi

Answer:



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8. DNA fingerprinting is mainly useful in _____ science.

A. formal science

B. natural science

C. social science

D. forensic science

Answer:



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9. Interferon is a group of small sized protein molecule used in treatment of _____ disease.

A. cancer

B. diabetes

C. anemia

D. viral

Answer:



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10. Cattle feeding on transgenic _____ does not contract a viral disease-rinderpest.

A. potato

B. onion

C. tobacco

D. tomato

Answer:



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11. Human Insulin gene now is been inserted into the genome of _____.

A. horse

B. cat

C. bacteria

D. virus

Answer:



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12. Stem cells are present in

A. umbilical cord

B. bone marrow

C. adipose connective tissue

D. All of the above

Answer:



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13. A clone is produced by fusion of nucleus of somatic cell with an enucleated

A. sperm

B. ovum

C. stem cell

D. hepatocyte

Answer:



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14. All the cells except sperm and ova in the body are called as _____ cells.

A. germ

B. somatic

C. stem

D. epithelial

Answer:



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15. _____ can absorb uranium and arsenic.

A. Sunflower

B. Groundnut

C. Ocimum

D. Sanctum

Answer: Alfalfa



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16. Government of India has encouraged the _____ for improving the productivity by launching NKM - 16.

A. sericulture

B. apiculture

C. pisciculture

D. cattle farming

Answer:



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17. Stem cell research is the revolutionary event in biotechnology after cloning.

- A. Industrial fermentation
- B. Stem cell reserach
- C. Electrophoresis
- D. Bioremediation.

Answer:



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18. Methods like artificial insemination and embryo transplant are mainly used for _____.

- A. phytoremediation
- B. genetically modified crops
- C. sewage management
- D. animal husbandry

Answer:



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19. The disease related with the synthesis of insulin is __

- A. cancer
- B. diabetes
- C. hepatitis
- D. Pancreatitis

Answer:



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20. Stem cells are present in _____ and _____ of adult human being.

A. liver, yellow bone marrow

B. nervous tissue, liver

C. red bone marrow, adipose connective tissue

D. Pancreas, liver

Answer:



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21. The property of self-multiplying of stem cells is called as _____.

A. Meiosis

B. Differentiation

C. Pluripotency

D. Totipotency

Answer:



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22. BT cotton and BT brinjal are developed by using gene isolated form _____.

A. *Bacillus thuringiensis*

B. *E.coli*

C. *Pseudomonas*

D. Acidophillus

Answer:



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23. A gene synthesizing _____ has been introduced in Golden Rice.

A. Vitamin D

B. Proteins

C. Vitamin C

D. Vitamin A

Answer:



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24. _____ is the antigen containing material given the acquire immunity.

A. Vaccine

B. Antibody

C. Antibiotic

D. Antiseptic

Answer:



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25. Potatoes which can be used as edible vaccines are called _____.

A. recombinant potatoes

B. transgenic potatoes

C. crossgenic potatoes

D. intergenic potatoes

Answer:



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26. _____ is used in the treatment of viral diseases.

A. Interleukin

B. Factor VIII

C. Interferon

D. Erythropoetin

Answer:



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27. _____ arises due to genetic changes in hepatocytes (liver cells).

A. Haematuria

B. Phenylketonuria

C. Albuminuria

D. Hepatitis

Answer:



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28. The fern _____ can absorb arsenic from the soil.

A. Adiantum

B. Polypodium glycyrrhiza

C. Pteris vitata

D. Selaginella

Answer:



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29. The bacterium _____ is highly radiation resistant organism.

A. Pseudomonas

B. Deinococcus radiodurans

C. Deinococcus radiophilus

D. Streptococcus thermophilus

Answer:



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30. Grasses like alfalfa, clover and rye are used for _____.

A. phytoremediation

B. ecoremediation

C. aquaremediation

D. cloning

Answer:



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31. _____ discovered microbes for cleaning the oil spills.

A. Dr. Har Govind Khurana

B. Dr. Anand Mohan Chakravarti

C. Dr. Govindajan Padmanabhan

D. Dr. Meghnad Saha.

Answer:



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32. Cell differentiation starts from _____
day of conception.

A. 8th

B. 14th

C. 21st

D. 32nd

Answer:



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33. Bacteria used as biofertilizer is

- A. Escherechia
- B. Deinococcus
- C. Nostac
- D. All of the above

Answer:



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34. Find the odd word out:

Cord blood, red bone marrow, epithelial tissue,
adipose connective tissue.



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35. Find the odd word out:

Liver, heart, eyes, kidney.



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36. Find the odd word out:

Cytology, molecular biology, genetic engineering, cosmology.



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37. Find the odd word out:

Rhizobium, Azotobacter, Nostoc, Lactobacilli.



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38. Find the odd word out:

Alfalfa, rye, clover, bamboo.



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39. Find the odd word out:

Somatostatin, erythropoietin, interleukin,
phenylketonuria.



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40. Find the odd word out:

DDT, malathion, chloropyriphos, NPK.



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41. Considering the relationship in the first pair, complete the second pair and rewrite:

National Centre for Cell Science : : Pune :

Instem : : _____.



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42. Considering the relationship in the first pair, complete the second pair and rewrite:

Green revolution : Dr. M.s. Swaminathan and

Dr. Norman Borlaugh : : White revolution :

_____.



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43. Considering the relationship in the first pair, complete the second pair and rewrite:

National Pomegrante Research Institute :

Solarpur : : National Citrus Research Institute :

_____.



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44. Considering the relationship in the first pair, complete the second pair and rewrite:

White revolution : Dairy : : Blue revolution :

_____.



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45. Considering the relationship in the first pair, complete the second pair and rewrite:

Insulin : Diabetes :: Interleukin : _____.



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46. Considering the relationship in the first pair, complete the second pair and rewrite:

Interferon : _____ :: Erythropoietin: Anemia.



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47. Considering the relationship in the first pair, complete the second pair and rewrite:

_____ : Dwarfness :: Factor VIII : Hemophilia



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48. Crop resistant -to bollworm : Bt cotton::

Crop synthesizing large quantities of vitamin

A: _____



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49. Considering the relationship in the first pair, complete the second pair and rewrite:

Osteocytes : Bone cells :: Hepatocytes :
_____.



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50. Considering the relationship in the first pair, complete the second pair and rewrite:

Adhatoda vasica : _____ :: Melia
azadiracta : Neem



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51. Match the columns :

Column 'A'	Column 'B'
(1) National centre for cell science	(a) Delhi
(2) Instem	(b) Pune
(3) Centre for DNA fingerprinting and diagnostics.	(c) Bengaluru
(4) Indian Agricultural Research Institute	(d) Hyderabad



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52. Match the columns :

Column 'A'	Column 'B'
(1) Bt Brinjal	(a) <i>Azotobacter</i>
(2) Weeds	(b) <i>Bacillus thuringiensis</i>
(3) Golden Rice	(c) Herbicides
(4) Biofertilizer	(d) Vitamin A
	(e) Hybrid seeds



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53. Match the columns :

Column 'A'	Column 'B'
(1) Dr. Anand Mohan Chakravarti	(a) Green revolutionn
(2) Dr. M. S. Swaminathan and Dr. Norman Borlaug	(b) White revolution
(3) Dr. Verghese Kurien	(c) Blue revolution
	(d) Cleaning of oil spillage



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54. Match the columns :

Column 'A'	Column 'B'
(1) Interferon	(a) Diabetes
(2) Factor VIII	(b) Dwarfness
(3) Somatostatin	(c) Viral Infection
(4) Interleukin	(d) Cancer
	(e) Hemophilia



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55. Match the columns :

Column 'A'	Column 'B'
(1) Erythropoietin	(a) Viral infection
(2) Interferon	(b) Dwarfism
(3) Insulin	(c) Anaemia
(4) Somatostatin	(d) Diabetes



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56. State whether the statement is true or false. Correct the false statement :

Cell Biology includes the study of cell division.



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57. State whether the statement is true or false. Correct the false statement :

Stem cells do not play an important role in wound healing.



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58. State whether the statement is true or false. Correct the false statement :

Research institutes specially dedicated for research on cells are established at Solapur and Nagpur.



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59. State whether the statement is true or false. Correct the false statement :

Stem cells are present in the umbilical cord by which the foetus is joined to the uterus of the mother.



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60. State whether the statement is true or false. Correct the false statement :

320 different types of cells in human body are formed single type of cells.



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61. State whether the statement is true or false. Correct the false statement :

Stem cells are parent cells of all types of human cells.



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62. State whether the statement is true or false. Correct the false statement :

Skin from all parts of the body can be donated.



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63. State whether the statement is true or false. Correct the false statement :

There is considerable progress mainly in the field of agriculture and pharmacy due to biotechnology.



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64. State whether the statement is true or false. Correct the false statement :

Genetic biotechnology involves use of either cell or tissue.



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65. State whether the statement is true or false. Correct the false statement :

Genetically modified Golden Rice variety

contain 50 times more amount of Beta carotene.



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66. State whether the statement is true or false. Correct the false statement :

Vaccines produced with the help of biotechnology are thermo-stable.



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67. State whether the statement is true or false. Correct the false statement :

Transgenic E.coli are used for production of interferon.



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68. State whether the statement is true or false. Correct the false statement :

Phenylketonuria arises due to genetic changes in osteocytes.





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69. State whether the statement is true or false. Correct the false statement :

There is world - wide support to human cloning various issues.



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70. State whether the statement is true or false. Correct the false statement :

Grasses like alfalfa, clover, rye are used in phytoremediation.



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71. State whether the statement is true or false. Correct the false statement :

DNA sequence of each person is unique as that of the fingerprints.



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72. State whether the statement is true or false. Correct the false statement :

30% to 60% subsidies are offered by Government for pisciculture.



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73. State whether the statement is true or false. Correct the false statement :

Chemical fertilizers increase the fertility of soil.



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74. Changes in genes of the cells are brought about in non-genetic technique.



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75. Gene from *Bacillus thuringiensis* is introduced into soybean.



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76. State whether the statement is true or false. Correct the false statement :

The bacteria *Pseudomonas* is highly radiation resistant organism.



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77. State whether the statement is true or false. Correct the false statement :

Cell differentiation starts from 5th - 7th day of conception.





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78. Embryonic cells before differentiation are called embryonic stem cells.



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79. State whether the statement is true or false. Correct the false statement :

Process of excretion can occur with the help of single kidney.



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80. A clone is produced by fusion of nucleus of somatic cell with an enucleated



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81. State whether the statement is true or false. Correct the false statement :

Genes can also be cloned and millions of copies of same gene can be produced.



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82. State whether the statement is true or false. Correct the false statement :

Genetically modified variety of cotton can absorb selenium from the soil.



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83. State whether the statement is true or false. Correct the false statement :

Dr. Verghese Kurein has a valuable contribution in green revolution.



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84. Special cells present in the body of multicellular organisms.



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85. Define stem cells? Mention two types of stem cells



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86. Sources of adult stem cells.



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87. Source of stem cell immediately after birth.



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88. Organs which can be donated only after death.



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89. Branches of Sciences included in Biotechnology.



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90. Genetically modified crops.



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91. Plant used as Biofertilizer.





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92. Explain the process of production of edible vaccines with a neat diagram.



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93. Protien used in treatment of viral disease.



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94. Genetic disorder in somatic cell



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95. New concepts in biotechnology



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96. Bacteria used as biofertilizers



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97. The bacterium _____ is highly radiation resistant organism.



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98. Discovery of cleaning of oil-spillage by microbes in oceans.



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99. Contributors of Green revolution.



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100. Pioneer of White Revolution



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101. Government pisciculture program



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102. Method of soil-less farming



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103. Pesticides



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104. *Pteris vittata*, alfalfa, clover, and rye are plants used for phytoremediation.



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105. Diseases in which cell therapy is used.



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106. Protien used in treatment of viral disease.



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107. Research institutes in India.



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108. Answer the following in one sentence.

What is cell?



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109. What is tissue? Which are the functions of tissue?



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110. Which technique in relation to tissues have you studied in earlier classes?



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111. Just like the grafting in plants, is organ transplantation possible in humans?



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112. What is biotechnology?



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113. Define the following:

Cytology / Cell Biology



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114. Define the following:

Stem cells



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115. Define the following:

Pleuripotency



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116. Genetically modified crops.



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117. Define the following:

Vaccine





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118. Define the following:

Cloning.



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119. Define the following:

Bio-remediation



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120. Define the following:

Blue revolution



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121. Define the following:

Cell therapy



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122. Define the following:

Biotechnology



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123. Write short notes:

Stem Cells.



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124. Write short notes:

Organ transplantation



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125. Write short notes:

Organ and body donation.



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126. Write a short note on Biotechnology -

Professional uses.



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127. Write short notes:

Benefit of Biotechnology.



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128. Genetically modified crops.



Watch Video Solution

129. Write short notes:

Biofertilizers.



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130. Write short notes:

Edible vaccines.



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131. Write short notes:

Green Revolution.



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132. Write short notes:

White revolution.



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133. Write short notes:

Blue revolution.



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134. Write short notes:

Organic farming.



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135. Write a short note on the importance of medicinal plants.



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136. Distinguish between :

Stem cells and cells



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137. State the uses of stem cells.



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138. In which various fields, biotechnology has been useful?



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139. What is Gene therapy?



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140. What is DNA finger printing?



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141. How are stem cells preserved?



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142. What is tissue? Which are the functions of tissue?



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143. Which are the various processes in tissue culture?



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144. Which new species of rice have been developed in India?



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145. Which products produced through biotechnology do you use in your daily life?



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146. Give the scientific reasons:

Herbicides tolerant plant varieties of crops are being developed.



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147. DNA fingerprinting is useful in forensic sciences and paternity testing.



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148. Why some of the organs in human body are most valuable?



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149. Explain the importance of fruit-processing in human life.



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150. Explain the meaning of vaccination.



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151. What is the impact of biotechnology on agricultural and other related fields?



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152. Why are artificial bee boxes used for Apiculture?



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153. Explain the extraction of Insulin.



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154. Give 5 examples of each of the fruiting and flowering plants developed through tissue culture and mention their benefits.



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155. Which fruit processing industries you observe in your surrounding? What is their effect?



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156. Mohan is suffering from Cirrohosis of Liver. His chances of survival is only 20%. Doctors are advising transplant of the Liver. What are the 2 possibilities of saving Mohan's life.





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157. What factor should be considered before transplant of the liver by Mohan and the donor.



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158. 25 years old yagnesh has met with an accident. He has lost his life. His parents want to donate his organs?

Which organs can be donated after death.



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159. 25 years old yagnesh has met with an accident. He has lost his life. His parents want to donate his organs?

Which organs can be donated after death.



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160. Anmol has renal failure. His Nephrologist has advised him renal transplant.

Can his mother donate him one kidney?



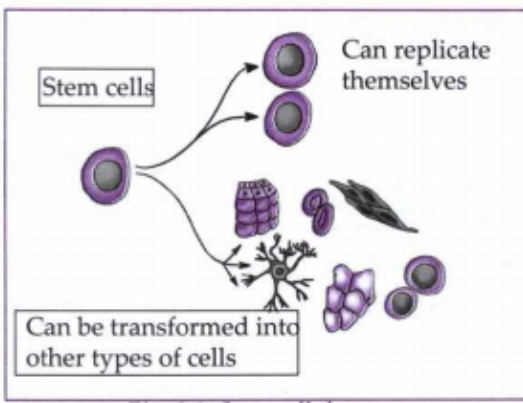
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161. What factors should be checked before transplant by the doctor for Anmol's mother and Anmol.



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162. Label the diagram and answer the questions below:



Label the diagram and give a heading.



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163. Define the type of cells.



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164. Which cells can be formed due to the cell mentioned in the diagram?

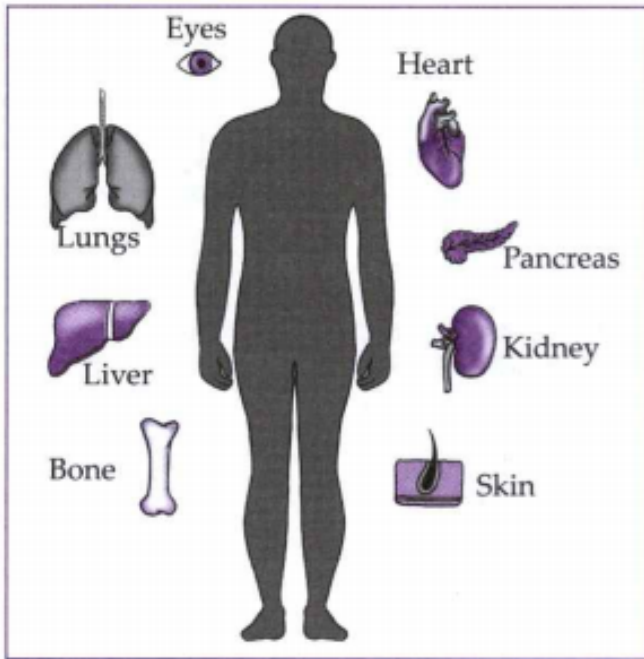


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165. State any one use of stem cells with respect to the diseases cured by it.



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166.

Label the organs in the diagram and name the diagram/ caption.



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167. List the organs that can be donated.



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168. What is posthumous donation?

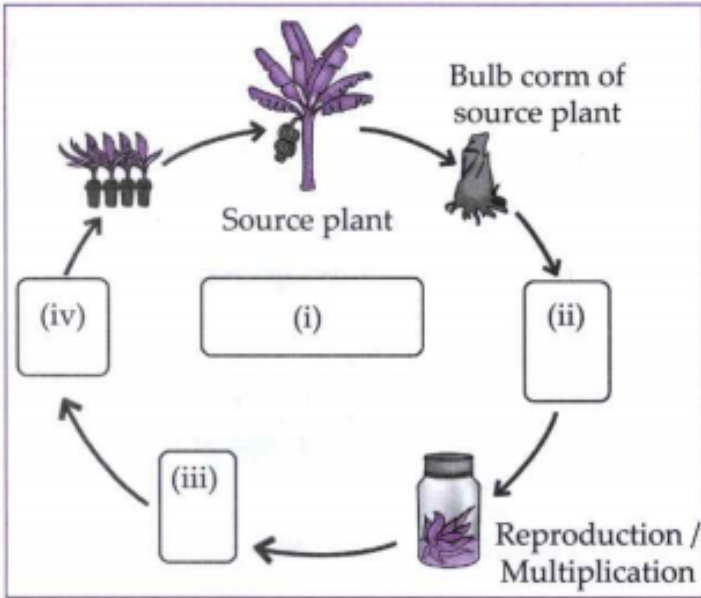


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169. Assign names in the figure given below.

Explain the various stages those are kept

blank.



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170. Based on the Genetically modified crops fill in the blanks and answer the questions based on it.

What is produced in the leaves of cotton plant?



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171. How does the bollworm die?



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172. Which type of gene is introduced in Golden Rice?



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173. Explain the formation of transgenic potatoes with the help of a diagram.



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174. Read the given paragraph and answer the questions:

Work on production of edible vaccines is in progress and presently, potatoes are being produced with the help of biotechnology. These potatoes are called as transgenic potatoes. These potatoes will act against bacteria like *Vibrio cholerae*, *Escherichia coli*. Consumption of these raw potatoes generates the immunity against cholera and the disease caused due to *E. coli*.

Edible Vaccines are taken in which form of food?



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175. List the bacteria against which these food will act.



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176. Transgenic potatoes against which disease immunity is generated?



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177.

DNA sequence of each person is unique as that of the fingerprints. Due to this, identity of any person can be established with the help of its available DNA. This is called as DNA fingerprinting. It is mainly useful in forensic sciences. Identity of the criminal can be established with the help of any part of its body found at the site of crime. Similarly, identity of father of any child can be established. This research is performed in Centre for DNA fingerprinting and Diagnostics, Hyderabad.

What is DNA fingerprinting?



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178. DNA fingerprinting is mainly used in which stream of science?



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179. What is the use of DNA fingerprinting?



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180. Where is DNA fingerprinting research performed?



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181.

A sheep 'Dolly' was born in Scotland by cloning technique on 5th July 1996. Nucleus from the udder cell of sheep of 'Finn Dorset' variety had been introduced into enucleated ovum of Scottish sheep. Then, the ovum was allowed to develop in the uterus of Scottish sheep and thereby 'Dolly' had been born. It was showing the characters as per the chromosomes in nucleus and any character of Scottish sheep was not visible.

In which year was the first cloning technique done?



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182. Name the varieties of sheep breed used to form the clone.



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183. Explain the meaning of the word enucleated ovum.



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184. Whose character Dolly was showing and why?



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185. Which precautions will you take during spraying of pesticides?



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186. Write a comparative note on usefulness and harmfulness of biotechnology.



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187. What is Biotechnology? What are its commercial applications?



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188. From the following processes find the odd-one out _____.

A. Biopesticide

B. Biofertilizers

C. Biosensors

D. Biology.

Answer:



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189. Phenylketonuria arises due to genetic changes in _____.

A. neurons

B. hepatocytes

C. osteocytes

D. blood corpuscles.

Answer:



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190. The disease related with the synthesis of insulin is __



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191. Find the odd man out: Red bone marrow, adipose connective tissue, blood, neurons.



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192. Interferon: _____ :: Erythropoietin:

Anemia



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193. State the uses of stem cells.



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194. Give Scientific reason: Sewage should be released into rivers only after oxidation.



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195. 19 year old Trisha has died after meeting with an accident. Parents are in deep grief and have decided to opt for organ and body donation. What is basic thought process behind the parents action?



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196. Genetically modified crops.





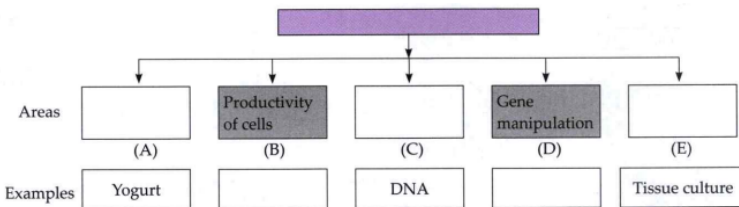
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197. Explain DNA fingerprinting.



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198. Complete the following tree diagram based on main areas of biotechnology.



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199. Draw a well labelled diagram of Transgenic potatoes and explain it.



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200. Write a comparative note on usefulness and harmfulness of biotechnology.



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