BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

BIOTECHNOLOGY : PRINCIPLES AND PROCESSES

Check Point 21 1

1. Who coined the term 'Biotechnology' for the first time ?

A. Hamilton Smith

B. Karl Ereky

C. Nathans

D. Both (a) and (b)

Answer: b

2. Biotechnology has become an important tool in

A. Crop improvement

B. human health care

C. chemical industries

D. All of the above

Answer: d

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3. EFB can be expanded as

A. European federation of Biotechnology

B. Eastern Faculty of Biology

C. European Federation of Biology

D. None of the above

Answer: a

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4. Traditional biotechnology includes the processes that are based on

A. genetic engineering

B. modification of gene chemistry

C. natural capabilities of microbes

D. Both (a) and (b)

Answer: c

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5. Industrial is still in use for the production of

A. curd

B. enzymes

C. preservatives

D. Both (a) and (b)

Answer: b

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6. Modern biotechnology is dependent upon the

A. fermentation

B. change in chemistry of genetic material

C. plant breeding

D. Both (a) and (b)

Answer: b

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7. The procedures associated with modern biotechnology are

A. genetic engineering

B. recombinant DNA technology

C. gene cloning

D. All of the above

Answer: d

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8. Who is regarded as the further of genetic enginering ?

A. W arber

B. Paul Berg

C. H smith

D. D Nathans

Answer: b

9. The purpose of a PCR is

A. amplification of gene

B. cutting of DNA

C. making a copy of mRNA

D. find a particular gene

Answer: A

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10. The purpose of electrophoresis is

A. separate DNA fragment

B. amplify a gene

C. cutting of vector

D. join DNA fragments

Answer: a

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Check Point 21 2

1. The enzymes involved in RDT are

A. restriction enzymes

B. ligases

C. lyases

D. All of the above

Answer: d

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2. The enzymes which have the ability to recognise and cut specific nucleotide sequences are called as

A. restriction enzymes

B. restriction endonucleases

C. molecular scissors

D. All of the above

Answer: d

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3. Exonucleases remove nucleotides from

A. ends

B. centre

C. single strand only

D. All of these

Answer: a

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4. The bacterial DNA remain protected from its own RE's because

A. it is methylated

B. it is acetylated

C. RE are inactivated

D. None of the above

Answer: a

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5. In Eco, RI, R is derived form

A. strain name

B. genus name

C. inventor's name

D. species name

Answer: a

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6. Recognition sites are usually

A. 4-8 bp long

B. 19-20 kbp

C. 10-15 bp long

D. 1-2 bp long

Answer: a

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7. The recongnition sites of Salt is

A. GTCGAC

B. CCCGGG

C. GAA TTC

D. GG ATCC

Answer: a

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8. Which of the following pair of RE's make blunt ends ?

A. Hpa I and Hae lll

B. Hind II and ECO RI

C. Alu I and Bgl II

D. Bam HI and Pst I

Answer: a

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9. Lyase enzymes are used to

A. open the cells

B. join DNA fragments

C. synthesise DNA

D. cut DNA

Answer: a

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10. The vehicle DNA is a

A. rDNA

B. vector

C. gene of interest

D. passenger DNA

Answer: b

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11. Which of the following is an essential feature of a good vector?

A. high copy number

B. low copy number

C. large size

D. All of these

Answer: a

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12. Which of the following correctly represent the range of size of plasmids ?

A. 2×10^5 to 2×10^6

B. 1×10^2 to 1×10^5

C. 1×10^6 to 200×10^6

D. None of these

Answer: c

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13. pBR322 contains genes for resistance against

A. ampicllin

B. tetracyclin

C. penicillin

D. Both (a) and (b)

Answer: d

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14. Which of the following represents a cosmid?

A. Plasmids + filamentous phage

B. Ti plasmid + phage

C. Plasmid + λ phage

D. None of the above

Answer: c

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15. The part of Ti plasmid transferred in plant cell DNA is

A. B-DNA

B. C-DNA

C. T-DNA

D. A-DNA

Answer: c

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16. Agrobacterium turnefaciens infects only

A. dicots

B. monocots

C. gymnosperms

D. All of these

Answer: a

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17. Bacterial artifical chromosomes is based on

A. F-factor

B. R-factor

C. R-plasmids

D. epigenetic factor

Answer: a

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18. The enzymes used to make DNA copies of RNA is

A. RNA polymerase

B. reverse polymerase

C. DNA lyase

D. reverse transcriptase

Answer: d

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19. Enzymes reverse transcriptase is naturally produced by

A. lambda phage

B. retrovirus

C. bacteria

D. None of these

Answer: b

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20. The tool used to find particualar gene in a whole genome is known as

A. antisense gene

B. shot gun

C. gene marker

D. probe

Answer: b

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Check Point 21 3

1. Synthesis of gene when DNA sequence is not known can be done via

A. combining nucleotides

B. cDNA synthesis

C. tRNA synthesis

D. All of the above

Answer: b

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2. DNA in a get move from cathode to anode due to the presence of

A. negatively charge phosphate

B. negatively charged sulphate

C. positively charged phosphate

D. positively charge sulphate

Answer: a

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3. Which of the following is an intercasting dye used to visualies DNA ?

A. Ehtidium bromide

B. Agarose

C. Polyacylamide

D. P^{32}

Answer: a

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4. Polymerase chain reaction was developed by

A. Smith

B. Karl Ereky

C. Karry mullis

D. Hoffmann

Answer: c

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5. Primers are usually ..... long .

A. 2-4 nucleotide

B. 5-8 nucleotide

C. 30-45 nucleotide

D. 10-18 nucleotide

Answer: D

6. The heat stable enzymes used in PCR during denaturation is

A. Reverse transcriptase

B. RNA polymerase

C. Taq polymerase

D. Both (a) and (b)

Answer: c

7. Which of the following is used to break H-bonds between nucleotides during PCR ?

A. High temperature

B. Alcohol treatment

C. Low temperature

D. Organic solvents

Answer: a

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8. Which of the following is not an application of PCR ?

A. Detection of pathogens

B. Diagnosis of mutations

C. Palaentology

D. All of the above

Answer: d

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9. Southern blotting was discovered by

A. EM southern

B. James Alwin

C. Karl Ereky

D. None of these

Answer: a

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10. Southern blotting is used for detecting

A. DNA

B. mRNA

C. RNA

D. protein

Answer: a

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11. Northern blotting was developed in the year

A. 1977

B. 1975

C. 1982

D. 2001

Answer: a

12. In northern blotting RNA bands are blotted onto

A. nitrocellulose

B. nylon membrane

C. DBM paper

D. Both (a) and (b)

Answer: c

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13. Which of the following is a technique to detect proteins of particular specificity ?

A. Western blotting

B. Northern blotting

C. Southern blotting

D. All of the above

Answer: a

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14. In Western blotting proteins are labelled with

A. antibodies

B. Lectins

C. Probes

D. Both (a) and (b)

Answer: d

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15. Replica plating technique can be used for

A. identifying transformed cells

B. separation of DNA fragements

C. Isolation of gene product

D. detection of gene product

Answer: a

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Check Point 21 4

1. Isolation of genetic material from fungal cells involves the use of

A. Lysozyme

B. Cellulase

C. Chitinase

D. Ligase

Answer: C

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2. Whichc chemical is used to precipitate DNA ?

A. Chilled ethanol

B. Acetic acid

C. Sodium hypochlorite

D. Both (a) and (b)

Answer: a

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3. Who developed the homopolymer tailing method ?

A. Jackson et. Al.

B. Alwin

C. W Nathans

D. Happmann

Answer: a

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4. Which of the following enzymes is utilised in homopolymer tailing ?

A. DNA ligase

B. Alkaline phosphate

C. Terminal transferase

D. dehydrogenase

Answer: c

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5. Indirect gene tranfer may occur by

A. Ti plasmid

B. Bacteriophage

C. Adenovirus

D. All of these

Answer: d

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6. Which of the following is used in heat shock method of direct gene transfer?

A. Calcium

B. Phosphate

C. Sodium

D. Molybdenum

Answer: A

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7. In microinjection, which of these is used to puncture the plasma membrane ?

A. Pipette

B. Silver particles

C. Enzymes

D. Biolistic

Answer: a

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8. Which of the following method is useful for delivering genes to cells in vivo ?

A. Adenovirus

B. Heat shock

C. Liposome

D. Electroporation

Answer: d

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9. PEG stand for

A. Poly Esterase Gene

B. Poly Ethylene Gycol

C. Poly Ethanol Glycol

D. None of these

Answer: a

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10. Who developed the immunological of selection of transformed cells ?

A. Gunstein Hogness

B. Broom

C. Gilbert

D. Both (b) and (c)

Answer: a

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11. In immunological method, which technique is used to detect clones at the end ?

A. Wetern blotting

B. Insertional inactivation

C. Replica plating

D. None of the above

Answer: a

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12. The nucleic acid hybridisation was developed by

A. Grunstein

B. Hogness

C. Glibert

D. Both (a) and (b)

Answer: c

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13. In blue-white screening ..... Is used in medium.

A. chromogenic substrate

B. ampicillin

C. tetracyclin

D. All of these

Answer: a

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14. According to blue white screening method, recombinants are identified on the basic of inactivation of

A. β-glactosidase

B. α-galactosidase.

C. Both (a) and (b)

D. None of these

Answer: d

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15. In blue-white screening the recombinants can be identified as

A. colourless colonies

B. blue coloured colonies

C. red coloured colonies

D. None of the above

Answer: a

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Check Point 21 5

1. A collection of entire genome of an organism in the form of plasmid clones or phage lysate is known as

A. Genomic library

B. Gene bank

C. Germplasm collection

D. Both (a) and (b)

Answer: c

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2. Which of the following method is used to construct genomic library ?

A. Shot gun sequencing

B. Homopolymer tailing

C. Insertion inactivation

D. Both (b) and (c)

Answer: a

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3. A biochip can be used for

A. detection of communicable diseases

B. screening of gene profiles

C. Palaentology

D. All of the above

Answer: b

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4. Expand VNTR

A. Variable Number Tanderm Repeats

B. variable Nucleotide Tandem Repeats

C. Variable Nucleotide Tandem Regions

D. Both (b) and (c)

Answer: A

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5. VNTRs are usually .... Long.

A. 10-20,000 nucleotide

B. 80-18000 nucleotide

C. 10-100 nucleotide

D. 1-10 nucleotide

Answer: c

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6. VNTRs are similar in

A. siblings

B. grand parents

C. monozygotic twins

D. dihybrids

Answer: c

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7. DNA fingerprinting is used in

A. Phylogenetic studies

B. Paternity disputes

C. identification during crimes

D. All of the above

Answer: d

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8. Short tandem repeats are also called as

A. microsatellites

B. minisatellites

C. macrosatellites

D. satellites

Answer: a

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9. Who is the father of modern embryology ?

A. Hans spermann

B. EW james

C. Karl Ernst

D. Gilbert

Answer: a

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10. Clonig is absent in

A. higher plants

B. higher animals

C. lower plants

D. bacteria

Answer: b

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11. The first successful clone was named as

A. Noori

B. Dolly

C. Penny

D. Jolly

Answer: b

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12. The first successful clone was developed by

A. Wilmut

B. Campbell

C. Glibert

D. Both (a) and (b)

Answer: d

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13. Clone Noori is a

A. Pashmina goat

B. calf

C. sheep

D. goat

Answer: a

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14. RAPD can be expanded as

A. restriction amplified polymorphic DNA

B. Random amplified protein and DNA

C. Random amplification of polymorphic DNA

D. None of the above

Answer: c

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15. RELP can be used as a

A. molecular marker

B. protein marker

C. DNA probe

D. All of these

Answer: a

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Chapter Exercises Taking It Together Assorted Questions Of The Chapter For Advanced Level Practice

1. In a chromosome, there is a specific DNA sequence, which is responsible for initiating replication, known as

A. vector

B. origin of replication

C. recognition sequence

D. marker gene

Answer: b

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2. The first transgenic cow is

A. Pinki

B. Dolly

C. Rosie

D. Elli

Answer: c

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3. DNA fingerprint profile will be exactly same of

A. siblings

B. offsprings

C. identical twins

D. fraternal twins

Answer: c

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4. Dermatohlyphics is the study of

A. skin disease

B. care of skin

C. cosmetics

D. fingerprints

Answer: d

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5. Bacterial plasmid contains

A. dsDNA

B. ssRNA

C. ssDNA

D. dsRNA

Answer: a

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6. eDNA stands for

A. copy DNA

B. coupled DNA

C. complementary DNA

D. compound DNA

Answer: c

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7. The molecular binder in genetic engineering is

A. polymerase

B. endonuclease

C. ligase

D. permease

Answer: c

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8. The most commonly used matrix in gel electrophoresis is

A. agarose

B. ethidium bromide

C. sulphate bromide

D. sodium lauryl sulphate

Answer: a

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9. The separated DNA fragments can be visualised only after staining the DNA a comound known as

A. ethidium sulphide

B. ethidium bromide

C. ethidium sulphite

D. ethidium bromite

Answer: b

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10. The father of DNA fingerprinting is

A. Sunder Lal Bahuguna

B. Vishwanath

C. Jeffrey

D. Rockfeller

Answer: c

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11. Retroviruses, in animals have the ability to transform normal cell into

A. dead cell

B. RNA containing cell

C. DNA containing cell

D. cancerous cell

Answer: d

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12. The method, in which recombinant DNA is directly injected into the nucleus of an animal cell is

A. microinjection

B. Ti plasmid

C. Ri plasmid

D. Both (b) and (c)

Answer: a

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13. The process by which multiple copies of the gene of intersect is synthesized in vitro using two sets of primers, is known as

A. PCR

B. gel electrophoresis

C. DNA fingerprinting

D. Western blotting

Answer: a

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14. You can see bright orange coloured bands of RNA in an ethidium bromide stained gel exposed to

A. X-rays

B. sun rays

C. UV rays

D. gamma rays

Answer: C

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15. A procedure through which is piece of DNA is introduced in a host bacterium is

A. transduction

B. transformation

C. conjugation

D. All of these

Answer: d

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16. The ability of an antibiotic resistance gene to multiply several times in E. coli is called

A. cloning

B. transformation

C. insertional inactivation

D. All of these

Answer: a

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17. Which is the following restriction enzymes procedure blunt ends ?

A. Sma I

B. Hae III

C. Alu I

D. All of these

Answer: d

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18. Sticky ends are produced by following restriction enzymes except

A. Pst I

B. Sma I

C. Hae II

D. Bam HI

Answer: b

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19. Which of the following could be a restriction enzyme recognition site ?

A. ATGCAT

B. ATCATC

C. AAACGA

D. ATCCTA

Answer: a

20. Plasmids that genes to provide resistance to antibiotics are called

A. R plasmids

B. C plasmids

C. A plasmids

D. Ti plasmids

Answer: a

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21. cDNA - mRNA bybrids are made by using

A. Reverse transcriptase

B. DNA polymerase

C. RNA polymerase

D. restriction endonucleases

Answer: a

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22. The number of copies of a gene present in a cell is called

A. gene dosage

B. gene pool

C. gene amplification

D. gene frequency

Answer: a

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23. The breakage of DNA fragement and inserting it into another DNA molecule, this technique is related to

A. gene splicing

B. gene cloning

C. gene typing

D. DNA fingerprinting

Answer: b

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24. Genetically identifical copy of individual cell or gene is known as

A. species

B. phagmid

C. clone

D. plasmid

Answer: c

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25. Term which can be used as synonym of genetic engineering in many cases in known as

A. gene manipulation

B. gene therapy

C. Both (a) and (b)

D. recombinant DNA technology

Answer: d

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26. A gene carried by recombinant DNA is cloned when

A. Its host bacterium divides by binary fission.

B. its is transcribed

C. it is fragmented by restriction enzymes

D. it is hybridised

Answer: a

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27. The process used for separation of the proteins in polycrylamide gel is called

A. Soutern blotting

B. Northern blotting

C. Western blotting

D. Eastern blotting

Answer: c

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28. Which of the following is associated with genetic engineering ?

A. Plastids

B. Plasmids

C. ATPase

D. Histones

Answer: b

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29. Which is the first enzyme used in the production of cDNA ?

A. Restriction enzymes

B. Reverse transcriptase

C. Ligase

D. DNA polymerase

Answer: b

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30. Clones are stored in

A. gene bank

B. gene shelves

C. biological reserves

D. All of these

Answer: a

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31. Bacterial resistance to antibiotics is a genetic trait carried in the bacterial

A. intron

B. chromosome

C. plasmid

D. centromere

Answer: c

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32. An enzyme catalysing the removal of nucleotides from the ends of DNA is

A. endonuclease

B. exonuclease

C. DNA ligase

D. Hind II

Answer: b

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33. While isolating DNA from bacteria, which of the following enzymes is not used ?

A. lysozyme

B. Rbonuclease

C. Deoxyribonuclease

D. Protease

Answer: c

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34. In agarose gel electrophoresis, DNA molecules are separated on the basic of their

A. charge only

B. size only

C. charge to size ratio

D. All of these

Answer: d

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35. An antibiotic resistance gene in a vector usually helps in the selection of

A. competent cells

B. transformed cells

C. non-transformed cells

D. None of these

Answer: b

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36. If any protein encoding gene is expressed in a host, is called a

A. recombinant protein

B. heterologous protein

C. secondary protein

D. tertiary protein

Answer: a

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37. Which of the following enzymes is used to form the permanent combined DNA ?

A. Restriction endonuclease

B. Restriction exonuclease

C. DNA ligase

D. reverse transcriptase

Answer: c

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38. Which of the following is a clonning vector ?

A. Cosmid

B. Phagemid

C. Plasmids

D. All of these

Answer: d

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39. The universal DNA probe is made up of repeated

A. TATA

B. GATA

C. CACA

D. ATGA

Answer: b

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40. BY using which of the following vectors, specific genes were introduced into the host plant ?

A. Agrabacterium tumefaciens

B. Meloidegyne incognitia

C. Escherchia coli

D. Bacillus thruingiensis

Answer: a

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41. The procedure, in which DNA fragments are separated by gel electrophoresis and then transferred on to a filter for radioactive probing is known as

A. gene mapping

B. gene cloning

C. polymerase chain reaction

D. Southern blotting technique

Answer: d

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42. In order to express human gene in a bacterium, cDNA must be made because bacteria

A. splice RNA

B. destroy human DNA

C. cannot remove introns

D. have reverse transcriptase

Answer: c

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43. The copies of a DNA molecule in a test tube are produced by

A. Polymerase Chain Reaction (PCR)

B. Molecular Chain Reaction (MCR)

C. Ephemeral Chain Reaction (ECR)

D. All of the above

Answer: a

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44. DNA of plasmid is

A. double-standed and circular

B. single-stranded and circular

C. double-stranded and linear

D. single-stranded and linear

Answer: a

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45. Ori sequence in plasmid refers to sequence

A. for antibody resistance

B. from which replication will start In plasmid

C. for restriction site

D. Both (a) and (b)

Answer: b

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46. Which of the following processes or procedures does not involve any nucleic acid hybridisation ?

A. Separation of fragment by gel electrophoresis

B. Southern blotting

C. Polymerase chain reaction

D. DNA sequencing by the Sanger method

Answer: a

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47. Which of the following technique is used for forensic purpose ?

A. Gene cloning

B. DNA fingerprinting

C. Tissue culture

D. Organ culture

Answer: b

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48. A restriction enzyme breaks between the

A. base pairs of a DNA molecule

B. base pairs of a DNA -RNA hybrid molecule

C. sugar and phosphate components of a nucleic acid molecule

D. exon and introns of a DNA molecule

Answer: c

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49. The sticky ends of a fragmented DNA molecule are made of

A. calcium salts

B. endonuclease

C. unpaired bases

D. methyl groups

Answer: b

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50. The natural function of a restriction enzymes is to

A. cut up DNA

B. remove introns from the RNA transcript

C. remove exons from the RNA transcript

D. facilitate m RNA formation from nucleotides

Answer: a

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51. Rising of dough is due is

A. multiplication of yeast

B. production of CO_2

C. emulsification

D. hydrolysis of wheat flour starch into sugars

Answer: b

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52. The transfer of genetic material from one bacterium to another through the mediation of a vector like virus is termed as

A. transduction

B. conjugation

C. transformation

D. translation

Answer: c

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53. Which of the following is not required in the preparation of a recombinant DNA molecule ?

A. Restriction endonucleases

B. DNA ligase

C. DNA fragments

D. E. coli

Answer: d

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54. Which of the following is not a source of restriction endonuclease ?

A. Haemophilus influenzae

B. Escherichia coli

C. Agrabacterium tumefaceins

D. Bacillus amyloli

Answer: c

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55. When an alien DNA is linked with the origin of replication, so that this alien piece of DNA can replicate and multiply itself in the host organism, then this can be called as

A. molecular farming

B. replication

C. conjugation

D. transformation

Answer: d

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56. In addition to Ori, the vector requires a ....., which help in identifying non-transformants and selectively permitting the growth of the transformants.

A. Selectable marker

B. cloning sites

C. recognition site

D. All of these

Answer: a

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57. Which technique is used to check the progression of restriction enzyme digestion

A. Western blotting

B. SDS page

C. Agarose gel electrophoresis

D. All of the above

Answer: c

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58. A thermostable DNA polymerase, which remains active in high temperature induced denaturation of double-stranded DNA is isolated from a bacterium

A. E. coli

B. Thermus aquaticus

C. Salmonella

D. A. tumefaciens

Answer: b

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59. In order to link the alien DNA the vector needs to have very few, preferably single ..... for the commonly used restriction enzymes.

A. Ori

B. recognition sites

C. insertional sites

D. circular sites

Answer: b

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60. E. coli cloning vector pBR322 contains restriction sites in the region of amp^R, tet^R genes that codes for the

A. antibiotic resistance genes

B. foreign DNA

C. selection of recombinants from non-recombinants

D. proteins involved in the replication of the plamid

Answer: a

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61. In the year 1963, the two enzymes responsible for restricting the growth of bacteriophage in E. coli were isolated. One of these added methyl groups to DNA, while the other cut DNA. The latter was called

A. restriction endonuclease

B. methylase

C. ligases

D. plasmid

Answer: a

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62. A single-stranded DNA or RNA, tagged with a radioactive molecule (probe) is allowed to hybridise to its complementary DNA in a clone of cells followed by detection using

A. photographic film

B. autoradiography

C. nitrocellulose paper

D. replica plating

Answer: b

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63. The genes encoding resistance to antibiotics such as ampicillin, chloramphenicol, tetracycline or kanamycin, etc. are considered useful selectable markers in

A. E. coli

B. Bacillus thuringiensis

C. Meloidegyne incognitia

D. All of these

Answer: a

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64. When cut by the same restriction enzyme, the resultant DNA fragments have the same kind of sticky-ends and these can be joined together (end to end) using

A. ATP

B. DNA ligase

C. DNA polymerases

D. restriction enzymes

Answer: b

65. IN PCR, short primers are added to single stranded DNA molecules in a test tube and the appropriate enzymes are included to make a copy of the DNA which of the following primers is needed for copying the single-stranded DNA sequence 5' TACGGTAGGTC ?

A. 5' ATGCC

B. 5' GACCT

C. 5' TACGG

D. 5' GGCAT

Answer: b

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66. A 'genemic library is a term used to describe a

A. collection of books about genes in DNA technology

B. collection of known DNA sequences

C. collection of unknown gene sequences

D. culture of bacteria that contain DNA fragements representing the genome of an organism

Answer: b

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67. A molecular probe might be used to

A. find a nucleotide sequence

B. insert gene into a host cell

C. make DNA for gene cloning

D. cut down pieces of DNA to manageable size

Answer: a

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68. Main phenomenon on which genetic engineering is based is

A. alteration of genetic constitution of cells

B. insertion of plasmid in cells

C. alteration in cell organelles

D. joining of two cells

Answer: a

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69. To prevent recirculation of vector DNA and to increase the frequency of production of recombinant DNA technology

A. reverse transcriptase are used

B. alkaline phosphatases are used

C. acid phosphatases are used

D. All of the above

Answer: b

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70. Synthetic DNA or sDNA is synthesised in

A. lab without any template

B. cel cell without any template

C. the lab without any nucleotide

D. the cell without any nucleotide

Answer: a

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71. In the embryo of cloning Dolly sheep, the fusion is done between

A. nucleus less egg cell and udder cell

B. egg cell and nucleus less udder cell

C. egg cell and somatic udder cell

D. sperm cell and somatic cell

Answer: a

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72. Molecular cloning is

A. replication of recombinant DNA molecule inside the host cell

B. transduction of recombinant DNA

C. transformation of recombinant DNA

D. mutation of recombinant DNA molecule

Answer: a

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73. Type-I restriction enzyme

A. recognise the specific seqences and cleave DNA at the specific

B. do not recognise or cleave the specific sequence

C. recognise specific sequence but cleave non-specific sequence

D. None of the above

Answer: b

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74. Type-II restriction enzymes are preferred over type-I in cleaving DNA strand because they

A. cleave DNA very fast

B. do not require additional energy for cleavage

C. cleave DNA at specific site

D. Both (a) and (b)

Answer: d

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75. Restriction enzymes are used in genetic engineering because they

A. are nucleases that cut DNA at variable sites

B. are proteolytic enzymes which can degrade harmful proteins

C. can cut DNA at specific base sequence

D. can join different DNA fragments

Answer: c

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76. A fragment of DNA, cut by a restriction enzyme, forms bonds with other DNA molecules that have

A. methyl groups attached to them

B. unpaired bases

C. plasmid components

D. been fragmented by the same restrction enzyme

Answer: d

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77. It is preferable to use yeast rather than bacteria as recipient cells for recombination of eukaryotic DNA because yeast can

A. produce restriction enzymes

B. excise introns from the RNA transcript

C. remove methyl groups

D. reproduce at faster rate

Answer: b

Watch Video Solution

78. Which of the followings is first recombinant DNA produced unintentionlly ?

A. DNA of one bacteria with another bacteria

B. DNA of a virus and a bacterium

C. DNA of bacteria and man

D. DNA of two viruses

Answer: b

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79. The role of restriction enzymes in DNA technology is to

A. provide a vector for the transfer of recombinant DNA

B. produce cDNA from mRNA

C. produce a cut (usually staggered) at specific recognition sequences on DNA

D. reseal 'sticky ends' after base-pairing of complementary bases

Answer: c

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80. Gene for cloning may be chemically sunthesised

A. when the exact sequence of nucleotides is known

B. through the use of restriction enzymes and gel electrophoresis to separate restriction fragments

C. by the Sanger method

D. by making complementary DNA from genes without introns

Answer: a

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81. Yeast has become important in genetic engineering because it.

A. has plasmids that can be genetically engineered

B. allows the study of eukaryotic gene regulation and expression

C. grows readily and repidly in the laboratory

D. All of the above

Answer: d

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82. You are attempting to introduce a gene that imports larval moth resistance to bean plants. Which of the following vectors are you most likely to use?

A. Phage DNA

B. Bacterial plasmid

C. Ti plasmid

D. Yeast plasmid

Answer: c

Watch Video Solution

83. Complementary DNA does not create a momplete gene library because

A. it has eliminated introns from the genes

B. cell produces mRNA for only small portion of its genes

C. the shotgun approch produces more restiction fragments

D. cDNA can easily integrated into plasmids or phage genomes

Answer: b

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84. Choose the correct option regarding retrovirus

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 dsRNA virus

Answer: a

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85. Choose the incorrect match.

A. Western blotting - Protein

B. Northern blotting - RNA

C. Southern blotting - DNA

D. DNA fingerprinting - Protein

Answer: d

Watch Video Solution

86. Using recombiant DNA technology, genes from a donor cell can be inserted into a bacterium for DNA replication and protein synthesis. The kind of cells that can be used as gene donors in this technology are

A. bacteria only

B. either yeast or bacteria only

C. eukaryotic cells only

D. any kind of cell

Answer: d

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87. In recombinant DNA technology, a plasmid vector is cleaved by

A. four separate enzymes

B. modified DNA ligase

C. a heated alkaline solution

D. the same restriction enzyme that cleacves the donor gene

Answer: d

88. Which of the following is not true for recognition sequences?

A. Modification by methylation of bases within them prevents restriction of bacterial DNA

B. They are usually symmetrical sequences of four to eight nucleotides

C. They signal the attachment of RNA polymerase

D. Each recognition sequence is cut by a specific restriction enzyme

Answer: c

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89. Significance of 'heat shock' method in bacterial transformation is to facilitate:

A. Binding of DNA to the cell wall

B. Uptake of DNA through membrane transport proteins

C. Uptake of DNA through transient pores in the bacterial cell wall

D. Expression of antibiotic resistance gene

Answer: c

Watch Video Solution

90. Which of the following steps are catalysed by Taq polymerase in a PCR reaction ?

A. Denaturation of template DNA

B. Annealing of primers to template DNA

C. Extension of primer end on the template DNA

D. All of the above

Answer: c

 Watch Video Solution

91. The role of DNA ligase in the construction of a recombinant DNA molecule is :

A. formation of phosphodiester bond between two DNA fragements

B. formation of covalent bonds between sticky ends of DNA fragments

C. Formation of H-bonds between all purine and pyrimidine bases

D. None of the above

Answer: a

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92. The most important feature in a plasmid to be used as a vector is

A. origin of replication (Ori)

B. presence of a selectable marker

C. presence of sites for restriction endonuclease

D. All of the above

Answer: d

Watch Video Solution

93. Which of the given statements is correct in the context of observing DNA separated by agarose gel electrophoresis ?

A. DNA can be seen in visible light

B. DNA can be seen without staining in visible light

C. Ethidium bromide stained DNA can be seen orange in visible light

D. Ethidium bromide stained DNA can be used under exposure to UV light

Answer: d

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94. Which of the following has popularised the PCR (polymerase chain Reactions)?

A. Easy availability of DNA template

B. Availability of synthetic primers

C. Availability of cheap deoxyribonucleotides

D. Availability of Thermostable DNA polymerase

Answer: d

Watch Video Solution

95. Which of the following statements does not hold true for restriction enzyme?

A. It recognises a palindromic nucleotide sequence

B. It is an endonuclease

C. It is isolated from viruses

D. It produces the same kind of sticky end in different DNA molecules

Answer: c

Watch Video Solution

96. Which of the following should be chosen for best yield if one were to produce a recmobinant protein in large amounts ?

A. Laboratory flask of largest capacity

B. A stirred-tank bioreactor without in-lets and out-lets

C. A continuous culture system

D. Any of the above

Answer: c

Watch Video Solution

97. When a typical restriction enzyme cuts a DNA molecule, the cuts are uneven, so that the DNA fragments have single-stranded ends. These ends are useful in recombinant DNA work because

A. they serve as starting points for DNA replication

B. only single-stranded DNA segments can code for proteins

C. they enable researchers to use the fragments as molecular probes

D. The fragments will bind to other fragments with complementary ends

Answer: d

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98. Which of the following statements incorrectly explains the part of the normal process during the cloning of recombinant DNA in bacteria ?

A. Restriction enzymes are used to cut DNA fragments from cellular and plasmid DNA

B. A copy of the required gene is inserted into a bacterial plasmid by using DNA ligase

C. The electrophoresis is used to separate the recombinant DNA plasmids

D. The bacteria is transformed by the recombinant DNA plasmids

Answer: b

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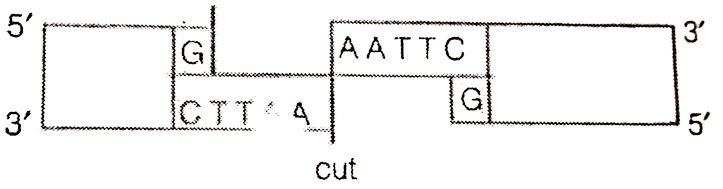
99. This figure shows the restriction site of Eco RI.



This restriction enzyme recognition site is palindromic and have specified base pairs. This means that the recognition sties have

A. base sequences identical to one another

B. base sequences that consist of only four bases

C. the base sequences in one DNA strand reading from one end the same as the sequences in the

complementary strand reading from the opposite end

D. base sequences, with attached probe

Answer: c

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100. The polymerase chain reaction generated a fragment of a distinct size even when an intact chromosome is used as template . What determines the boundaries of the amplified fragment ?

A. The sites of which the primer anneal

B. The duration of the elongation step in each cycle

C. The temperature of the clongation step in each cycle

D. The concentration of one particular deoxynucleotide in the reaction

Answer: a

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101. Forensic scientists have to work often with extremely small samples of DNA obtained from the

hair or other sources of suspected criminals. However, it is possible to produce DNA 'fingerprint' from these small samples by using

A. gene gun

B. gene cloning

C. polymerase chain reaction

D. genetically engineered microorganisms

Answer: c

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102. A bacterial cell was transformed with a recombinant DNA that was generated using a human gene. However, the transformed cells did not produce the desired protein. Reason could be

A. human gene may have intron which bacteria cannot process

B. amino acid condons for human and bacteria are different

C. human protein is formed, but degraded by bacteria

D. All of the above

Answer: a

Watch Video Solution

103. Becoming an expert on gel electrophoresis, you are asked to examine a gel for a colleague. Where would you find the smallest segments of DNA ?

A. Near the positive electrode, farthest away from the wells

B. Near the negative electode, close to the wells

C. Near the top, near the negative pole

D. Near the middle, they tend to slow down after the first few minutes

Answer: a

Watch Video Solution

104. Which of the following creates droblemin getting prokaryotic cells to express eukaryotic genes ?

A. The signals that control gene expression are different and prokaryotic promoter region must be added to thev vector

B. The genetic code differs between the two because prokaryotic substitute the uracil for thymine

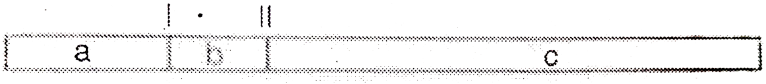
C. Prokaryotic cells cannot transcribe exons because their genes do not have them

D. Te ribosomes of prokaryotes are not large enough to handle long eukaryotic genes

Answer: a

View Text Solution

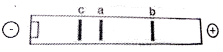
105. This segment of DNA has restriction site-I and II, which create restriction fragments a, b and c. Which of the following gel (s) produced by electorphoresis would represent the separation and identification of these fragments ?



A. 

B. 

C. 

D. (d) 

Answer: b

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106. You have a fixed the chromosomes from a cell onto a microscope slide. Which of the following would not make a good radioactively labelled probe to help map a particular gene to one of these chromosomes ? lt brgt (Assume DNA of chromosomes and probes is single-stranded).

A. cDNA made from the mRNA transcribed from the gene

B. A portion of the amino acid sequence integrated to chromosome

C. mRNA transcribed from the gene

D. piece of the restriction fragment on which the gene is located

Answer: b

View Text Solution

107. A plasmid has two antibiotic-resistance genes, one for ampicillin and one for tetracycline. It is treated with a restriction enzyme that cuts in the middle of the ampicillin gene. DNA fragments containing a haemoglobin gene were cut with the

same enzyme. The plasmids and fragments are mixed, treated with ligase and used to transform bacterial cells. Clones that have taken up the recombinant DNA are the one that

A. are blue and can grow on plates with both antibiotics

B. can grow on plates with ampicillin, but not with tetracycline

C. can grow on plates with tetracycline, but not with ampicillin

D. Cannot grow with any antibiotics

Answer: c

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B Medical Entrances Special Format Questions Statement Based Questions

1. Consider the following statements.

I. Ability to replicate autonomously.

II. Single sites for a large number of restriction enzymes.

III. Easy transformation to the host cells.

IV. High molecular weight for enhanced stability.

Choose the statement that are requirements of a vector

A. I and II

B. II and IV

C. I, II and III

D. All of these

Answer: c

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Chapter Exercises B Medical Entrances Special Format Questions Statement Based Questions

1. Which of the following steps are involved in recombinant DNA technology ?

I. The cells having desired DNA molecule are separated and cultured to increase their number.

II. A suitable vector and donor DNA both are treated with similar restriction enodnucleases.

III. Self ligation is increased with alkaline phosphatase.

IV. The host cell cannot be a bacterium.

A. I and IV

B. I and II

C. II and III

D. None of the these

Answer: b

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2. Which of the following is correct for DNA fingerprinting ?

I. It is used to identify a person on the basis of person DNA specificity.

II. It is based upon the fact that DNA constitution of an individual carries some specific sequences of nucleotides.

III. It is used to produce transgenic organisms.

IV. It starts with one gene sized piece of RNA.

A. Only I

B. Only II

C. I and II

D. All of these

Answer: c

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3. Which of the following statements are incorrect ?

I. Term PCR is used for organisms, which carry foreign

genes.

II. SCID includes genetic disorders only.

III. Cloning is the production of GMOs, e.g. Flaur saur tomato.

IV. The bacteria use restriction endonucleases to destroy the DNA of invading foreign viruses.

A. Only I

B. Only II

C. II and IV

D. I, II and III

Answer: d

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Chapter Exercises Match The Columns

1. Match the following Columns.

Column I	Column II
A. Bacterial enzymes used to cut DNA at defined sequences	1. Recognition sequences
B. Sequences cut by restriction enzymes	2. Plasmids
C. Ends left on DNA segments cut by DNA restriction enzymes	3. Sticky ends
D. Circular pieces of DNA found in bacteria	4. Restriction enzymes

A.

A	B	C	D
1	4	3	2

B.

A	B	C	D
4	1	3	2

C.

A	B	C	D
1	4	2	3

D.

A	B	C	D
4	3	2	1

Answer: b

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2. Match the following Columns.

	Column I	Column II
A.	Bacterial viruses	1. Transformation
B.	Process by which bacteria take up pieces of DNA from the environment	2. Cloning vector
C.	*Hind* II	3. *Haemophyllus influenzae*
D.	vehicle that moves DNA from one organism to another	4. Bacteriophages

	A	B	C	D
A.	2	3	4	1
B.	1	3	4	2
C.	4	1	3	2
D.	1	4	3	2

Answer: c

Watch Video Solution

3. Match the following Columns.

Column I	Column II
A. A molecule used to carry foreign genes into bacteria	1. Restriction enzymes
B. A rapid way to amplify DNA in the laboratory	2. Recombinant DNA
C. A way to separate DNA fragments based on their size	3. PCR
D. Molecular scissors	4. Vector
E. A gene sequence from more than one origin	5. Gel electrophoresis

A. A 4 B 3 C 5 D 1 E 2

B. A 2 B 4 C 3 D 1 E 5

C. A 5 B 4 C 3 D 2 E 1

D.

A	B	C	D	E
1	5	4	2	3

Answer: a

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Chapter Exercises Assertion And Reason

1. Assertion : Plasmids are single stranded extra chromosomal DNA.

Reason: Plasmids are found in Eukaryotic cells.

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

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

C. Assertion is true, but the Reason is false

D. Both Assertion and Reason are false

Answer: d

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2. Assertion : Agrobacterium tumefaciens is popular in genetic engineering because this bacterium is associated with the roots of all cereal and pulse

crops.

Reason : A gene incorporated in the bacterial chromosomal genome gets automatically transferred to the crop with which the bacterium is associated .

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

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

C. Assertion is true, but the Reason is false

D. Both Assertion and Reason are false

Answer: d

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3. Assertion Recombinant DNA can be chimeric DNA.

Reason The chimeric DNA is that recombinant DNA, which is formed of two or more sources.

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

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

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: a

4. Assertion DNA fingerprinting is very useful in forensic science.

Reason It is the method, in which, individual pattern of DNA fragments is determined through the number and position of specific repeated sequences.

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

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

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: b

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5. Assertion Vector is very useful in recombinant DNA technology.

Reason Vector is a tool that carries a foreign DNA molecule to the living cell.

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

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

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: a

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6. Assertion A genetic probe is helpful in the detection of specific DNA sequence.

Reason Genetic probe is a radiolabelled cDNA, which has complementary base sequence, to DNA fragment which is to be detected.

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

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

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: a

Watch Video Solution

Chapter Exercises C Medical Entrances Gallery Collection Of Questions Asked In Neet Various Medical Entrance Exams

1. Stirred-tank bioreactors have been designed for

A. purification of product

B. addition of preservatives to the product

C. availability of oxygen throughout the process

D. ensuring anaerobic conditions in the culture vessel

Answer: c

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

A. Eco RI

B. taq polymerase

C. polymerase III

D. ligase

Answer: d

Watch Video Solution

3. Which of the following is not a component of downstream processing

A. Separation of fragement by gel electrophoresis

B. Purification

C. Preservation

D. Expression

Answer: d

Watch Video Solution

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

A. Sal I

B. Eco RV

C. Xho

D. Hind III

Answer: b

Watch Video Solution

5. Which of the following is a restriction endonuclease ?

A. Protease

B. Dnase I

C. RNase

D. Hind II

Answer: d

Watch Video Solution

6. Assertion : Restriction endonuclease recognize short palindromic. Sequence and cut at specific sites.

Reason : When a restriction endonuclease acts on Palindrome, it cleaves both the the strands of DNA molecules.

A. A is incorrect and R is correct

B. A and R are both correct, but R is not explanation of A

C. A is correct and R is incorrect

D. A and R are both correct and R is explanation of A

Answer: b

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7. DNA polymerase is isolated from bacteria

A. E. coli

B. B. Thiringiensis

C. Thermus aquaticus

D. Agrobacterium

Answer: c

Watch Video Solution

8. Bacteria protect themselves from viruses by fragmenting viral DNA upon entry with

A. methylase

B. endonuclease

C. ligases

D. exonuclease

Answer: b

Watch Video Solution

9. Restriction endonucleases are

A. used for in vitro DNA synthesis

B. synthesized by bacteria as part of their defense mechanism

C. present in mammalian cells for degradation of DNA when the cells dies

D. used in genetic engineering for ligasting two DNA molecules

Answer: b

Watch Video Solution

10. Assertion : Gel electrophoresis and elution are two important processes.

Reason : After staining with ethidium bromide it has to be exposed to U.V light.

A. Only A is correct

B. Both A and B are correct

C. Only B is correct

D. Only A is correct and B is incorrect

Answer: b

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11. The function of a selectable marker is

A. eliminating transfromants and permitting non-transformants

B. identify ori site

C. elimination of non-transformants and permitting transformants

D. to destroy recognition sites

Answer: c

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12. Which vector can clone only a small fragment of DNA ?

A. Plasmid

B. Bacterial artifical chromosome

C. Cosmid

D. Yeast artifical chromosome

Answer: a

Watch Video Solution

13. In insertional inactivation of β-galactosidase gene, the bacteria in white colonies have

A. non-recombinant plasmid

B. recombinant plasmid

C. no plasmid

D. linear foreign DNA

Answer: b

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14. Identify the steps that are involved in PCR

I. Denaturation

II. Annealing

III. Extension

IV. Downstream processing

A. II, IV and III

B. I IV and II

C. I, II and III

D. I, III and IV

Answer: c

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15. The recognition sequences of restriction enzyme 'A' is GGCC and that of 'B' is GAATTC. Which statement among the following is true regarding the probable frequency of cutting sides in a genome.

A. Both A and B cut equally frequently

B. A cuts once every 676 nucleotides and B 1024 nucleotides

C. A cuts once every 256 nucleotides and 4096 nucleotides

D. A cuts once every 256 nucleotides and B 1024 nucleotides

Answer: d

View Text Solution

16. The cloning vectors M13 has genetic material

A. ssRNA

B. dsRNA

C. ssDNA

D. dsDNA

Answer: c

Watch Video Solution

17. Which of the following enzyme is used to join DNA fragments :

A. DNA polymerase

B. Ligase

C. Primase

D. Enodnuclease

Answer: b

 Watch Video Solution

18. Restriction endonucleases are enzymes that

A. restricts the action of other enzymes

B. break phosphodiester bond between specific nucleotides of DNA

C. break nucleus into pieces

D. break H-bond between two strands of DNA

Answer: b

Watch Video Solution

19. The introduction of T-DNA 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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20. The DNA molecules of which the gene of interset is integrated for cloning is called

A. transformer

B. vector

C. template

D. carrier

Answer: b

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21. The cutting of DNA at specific locations became possible with the discovery of

A. restriction enzymes

B. probes

C. selectable markers

D. ligases

Answer: a

Watch Video Solution

22. An analysis of chromosomal DNA using the southern hybridization technique does not use

A. electrophoresis

B. blotting

C. autoreadiography

D. PCR

Answer: d

Watch Video Solution

23. 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

24. The first recombinant DNA was constructed by linking an antibiotic resistant gene with thte native plasmid of

A. Escherichia coli

B. Salmonella typhimurium

C. Clostridium butylicum

D. Acetobacter acetic

Answer: b

Watch Video Solution

25. The Polymerase Chain Reaction (PCR) is technique that is used for

A. in vivo replication of specific DNA sequence using thermostable DNA polymerase

B. in virto synthesis of mRNA

C. in vitro replication of specific DNA sequence using thermostable DNA polymerase

D. in vivo synthesis of mRNA

Answer: c

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26. Bioreactors are useful in

A. separation and purification of a product

B. processing of large volumes of culture

C. microinjection

D. isolation of genetic material

Answer: b

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27. During gene cloning, the enzyme used to join and insert DNA within plasmid is

A. DNA ligase

B. restriction endonucleases

C. alkaline phosphatase

D. exonuclease

Answer: a

Watch Video Solution

28. During gene cloning which is called 'gene taxi'

A. Vaccine

B. Plasmid

C. Bacterium

D. Protozoa

Answer: b

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29. Some foreign DNA fragment is attached to Cla I site of pB322. This recombinant vector is used to

transit Escherichia coli host cells. The cell subjected to transformation are plated on two different media- one containing ampicillin and the other containing tetracycline. THe transformed cells containing the recombinant vector

A. will grow on both tetracycline containing and ampicillin containing media

B. will not grow on either tetracycline containing or ampicillin containing media

C. will grow on tertracycline, but not on ampicillin containing medium.

D. will grow on ampicillin, but not on tetracycline containing medium

Answer: d

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30. Minisatellites or VNTRs are used in

A. DNA fingerprinting

B. Polymerase Chain Reaction (PCR)

C. gene therapy

D. gene mapping

Answer: a

Watch Video Solution

31. Eco RI is

A. a restriction enzyme

B. a plasmid

C. used to join two fragments

D. the abbreviation for bacterium Escherichia coli

Answer: a

Watch Video Solution

32. Which of the following option is correct for recombinant DNA technology

A. endonuclease enzyme removes nucleotides from the ends of DNA

B. Exonuclease enzyme removes nucleotides from site within DNA

C. Endonuclease enzyme cut long polantric DNA strand

D. Exonuclease enzyme removes nucleotides from ends of DNA

Answer: d

Watch Video Solution

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

A. insertional inactivation of α-galactosidase in non-recombinant bacteria

B. insertional inactivation of β-galactosidase in recombinant bacteria

C. inactivation of glycosidase enzyme in bacteria

D. non-recombinant bacteria containing β-galactosidase

Answer: b

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34. DNA fragment generated by the restriction endonucleases in a chemical reaction can be separated by

A. polymerase chain reaction

B. electrophoresis

C. restriction mapping

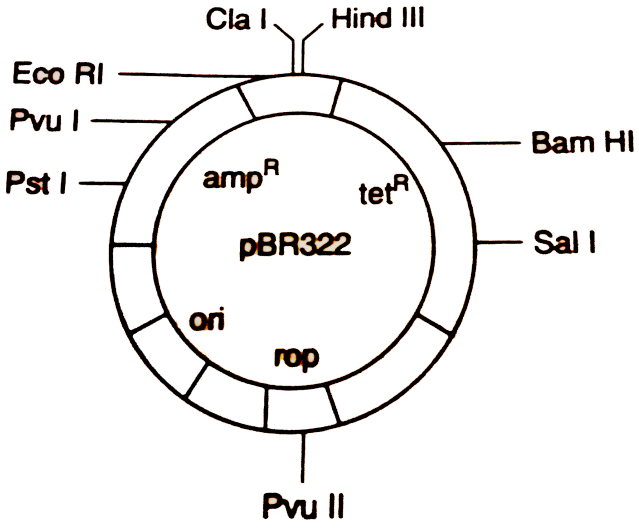
D. centrifugation

Answer: b

Watch Video Solution

35. The given figure is the diagrammatic representation of the E. coli vector pBR322. Which one of the given options correctly identifies its

certain component (s) ?



A. Ori-original restriction enzyme

B. rop-reduced osmotic pressure

C. Hind III, Eco RI-selectable markers

D. $amp^R tet^R$ - antibiotic resistance genes

Answer: d

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Watch Video Solution

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

A. silver or platinum

B. platinum or zinc

C. silicon or platinum

D. gold or tungsten

Answer: d

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37. PCR and restriction Fragements length Polymorphism are the methods for

A. study of enzymes

B. genetic transformation

C. DNA sequencing

D. genetic fingerprinting

Answer: d

Watch Video Solution

38. A single strand of nucleic acid tagged with a radioactive molecule is called:

A. vector

B. selectable marker

C. plasmid

D. probe

Answer: d

Watch Video Solution

39. Which one is a true statement regarding DNA polymerase used in PCR

A. It is used to ligate introduction DNA in recipient cells

B. It serves as a selectable marker

C. It is isolated from a virus

D. It remains active at high temperature

Answer: d

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40. When bacterial chromosome is attached to plasmid, this is called

A. episome

B. chromosome

C. genome

D. None of these

Answer: a

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41. Cohen and Boyer isolated an antibiotic resistance gene, by cutting out a piece of DNA from a plasmid which was responsible for conferring antibiotic resistance, in the year

A. 1962

B. 1965

C. 1972

D. 1982

Answer: c

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42. Restriction enzyme Eco RI cuts the DNA between bases G and A only when the sequence in DNA is

A. GATATC

B. GAATTC

C. GATTCC

D. GAACTT

Answer: b

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43. A mixture containing DNA fragments a, b, c and d with molecular weigths of $a + b = c, a > b$ and $d > c$, was subjected to agarose gel electrophoresis. The positions of these fragments from cathode to anode sides of the gel would be

A. b, a, c, d

B. a, b, c, d

C. c, b, a, d

D. b, a, d, c

Answer: a

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44. Cloning gene is process where:

A. gene is cloned in an animal

B. fragments of DNA are transferred from one organism to another, usually carried on a DNA vector

C. fragments of DNA cloned in the same organism using carrier

D. DNA is cloned in plants

Answer: a

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45. Enzyms that cleaves nucleic acids within the polynucleotide chain is known as

A. endonuclease

B. exonuclease

C. arylsulphatase

D. phosphotriestesterase

Answer: a

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46. The restriction enzyme(s) used in recombinant DNA technology that makes staggered cuts in DNA leaving sticky ends is/are

A. Eco RI

B. Hind III

C. Bam HI

D. All of these

Answer: d

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47. The source of Taq polymerase used in PCR is a :

A. thermophillic fungus

B. mesophillic fungus

C. thermophillic bacterium

D. halophillic bacterium

Answer: c

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48. A clone is a

A. heterozygote obtained asexually

B. homozygote obtained asexually

C. heterozygote produced by sexual methods

D. homozygote produced by sexual reproduction

Answer: b

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49. The organism which is used for gene transfer in higher organism is :

A. Agrabacterium tumefaciens

B. E. coli

C. Acetoacter aceti

D. Bacillius thuringiensis

Answer: a

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50. There is a restriction endonuclease called EcoRI. What does 'co' part in it stand for?

A. coelom

B. Coenzyme

C. coli

D. Colon

Answer: c

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51. Gene amplification using primers can be done by :

A. microinjection

B. ELISA

C. polymerase chain reaction

D. gene gun

Answer: c

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52. Which of the following is correctly matched ?

A. Agrobacterium tumefaciens -Tumour

B. Thermus aquaticus -Bt gene

C. pBR322 -Enzyme

D. Ligase -Molecular scissors

Answer: a

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53. Alec Jeffreys developed the DNA fingerprinting technique. The probe he used was

A. ribozyme

B. sex chromosomes

C. SNP

D. VNTR

Answer: d

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54. Which of the following statements is not true for a clone ?

A. Clones are descended from a single parent

B. Identical twins are not clones

C. Clone is a result of sexual reproduction

D. Both (a) and (b)

Answer: c

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55. Which one of the following techniques has helped to solve many mysteries involving murders, robberies and rapes ?

A. gene splicing

B. Computer technology

C. DNA fingerprinting

D. Gene cloning

Answer: c

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56. A kind of Biotechnology involving manipulation of DNA is

A. DNA replication

B. genetic engineering

C. denaturation

D. renaturation

Answer: b

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57. What is true of plasmid

A. Found in viruses

B. Contains genes for vital activities

C. Part of nuclear chormosome

D. Widely used in gene transfer

Answer: d

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58. A suitable vector for gene cloning in higher organism is

A. adenovirus

B. retrovirus

C. Salmonella typhimurium

D. Neurospora crassa

Answer: b

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59. DNA fingerprinting technique was discovered by

A. Wilmut

B. A Jeffreys

C. Ethoven

D. Kary Mullis

Answer: b

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60. Which of the following heavy/radioisotopes in not suitable for DNA labelling based studies ?

A. H_3

B. P^{32}

C. N^{15}

D. S^{35}

Answer: d

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61. PCR proceeds in three distinct steps governed by temperature they are in order of :

A. denaturation, annealing, synthesis

B. synthesis, annealing, denaturation

C. annealing, synthesis, denaturation

D. denaturation, synthesis, annealing

Answer: a

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62. Restriction enzymes are used to cut

A. single-stranded RNA

B. double-stranded DNA

C. single-stranded DNA

D. double-stranded RNA

Answer: b

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63. Restriction endonucleases are enzymes which:

A. make cuts at specific positions within the DNA molecule

B. recognise a specific nucleotide sequence for binding of DNA ligase

C. restrict the action of the enzyme DNA polymerase

D. remove nucleotides from the ends of the DNA molecule

Answer: a

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64. Which one of the following pallindromic base sequences in DNA can be easily cut at about the middle by some particular restriction enzyme.

A.

$5' - CGTTGG - 3'$ $3' - ATCGTA - 5'$

B.

$3' - ATCGTA - 5'$ $3' - CTACTA - 5'$

C.

$5' - GATATG - 3'$ $3' - CTTAAG - 5'$

D.

$5' - CACGTA - 3'$ $3' - CTCAGT - 5'$

Answer: c

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

A. Baculovirus

B. Salmonella typhimurium

C. Rhizopus migricans

D. Retrovirus

Answer: a

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66. Vector for T-DNA is

A. Thermus aquaticus

B. Salmonella typhimurium

C. Agrobacterium tumefaciens

D. Escherichia coli

Answer: c

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67. Which of the following is a plasmid ?

A. pBR322

B. Bam HI

C. Sal I

D. Eco RI

Answer: a

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68. In recombinant DNA technique, the term vector refers to

A. Donor DNA , is identified and picked uo through electrophoresis

B. plasmid, transfers DNA into living cell

C. collection of entire genome in form of plasmid

D. enzyme, cuts the DNA at sepecific sites

Answer: b

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69. Enzyme that is used in PCR technology is

A. Taq polymerase

B. polymerase

C. helicase

D. reverse transcriptase

Answer: a

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70. GAATTC is the recognization site for which of the following restriction endonuclease

A. Eco RI

B. Hind II

C. Eco RII

D. Bam HI

Answer: a

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71. Cosmid is

A. extragenetic material is mycoplasma

B. circular DNA in bacteria

C. Extra DNA in bacteria

D. fragment of DNA inserted in bacteria for forming copies

Answer: d

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72. Which of the following is not a restriction endonuclease ?

A. Eco RI

B. Hind III

C. Pst I

D. DNase I

Answer: d

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73. Blood stains ar found at the site of a murder. If DNA profiling technique is to be used for identifying the criminal. Which of the following is ideal for use

A. Serum

B. Erythrocytes

C. Leucocytes

D. Platelets

Answer: c

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74. Palaeontologists unearthed a human skull during excavation. A small fragment of the scalp tissue was still attached to it. Only little DNA could be extracted from it. It the genes of the ancient man need to be analysed, the best way of sufficient amount DNA from this extract is

A. hybridising the DNA with a DNA probe

B. subjecting the DNA to polymerase chain reaction

C. Sujbection the DNA to gel electrophoresis

D. treating the DNA with restriction endonucleases

Answer: b

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75. Gel electrophoresis is used for

A. cutting of DNA into fragments

B. separation of DNA fragments according to their size

C. construction of recombinant DNA by joining with cloning vectors

D. isolation of DNA molecule

Answer: b

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76. The linking of antibiotic resistance gene with the plasmid vector became possible with

A. DNA ligase

B. endonucleases

C. DNA polymerase

D. exonucleases

Answer: a

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77. What is the first step in the Southern Blot technique

A. Denaturation of DNA on the gel for hybridisation with specific probe

B. Production of a group of genetically identical cells

C. Digestion of DNA by restriction enzyme

D. Denaturation of DNA from a nucleated cell such as the one from the scene of crime

Answer: c

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78. Manipulation of DNA in genetic engineering became possible due to the discovery of

A. restriction endonuclease

B. DNA ligase

C. transcriptase

D. primase

Answer: a

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79. Assertion : in recombinant DNA technology, human genes are often transferred into bacteria (prokaryotes) or yeast (eukaryote).

Reason: Both bacteria and yeast multiply very fast to form huge population which express the desired gene.

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

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

C. Assertion is true, but the Reason is false

D. Assertion and Reason are false

Answer: a

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80. Dr Karry B Mullis was awarded Nobel Prize in chemistry in 1993 for his work on

A. site directed chain reaction

B. polymerase chain reaction

C. mobile genetic elements

D. anitbody diversity

Answer: b

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81. Plasmids are suitable vectors for gene cloning because they are

A. are small circular DNA molecules, which can integrate with host chromosomal DNA

B. are small circular DNA molecular with their own origin of replication site

C. can shuttle between prokaryotic and eukaryotic cells

D. often carry antibiotic resistance genes

Answer: b

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82. Which one of the following makes use of RNA as a template to syntesize DNA-

A. Reverse transcriptase

B. DNA dependent RNA polymerase

C. DNA polymerase

D. RNA polymerase

Answer: a

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83. Transfer of any gene into a completely different organism can be done through :

A. genetic engineering

B. tissue culture

C. transformation

D. None of these

Answer: a

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84. A plasmid

A. cannot replicate

B. can replicate independently

C. shows independent assortment

D. Lies together with chromosomes

Answer: b

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85. Which of the following is used as a best genetic vector in plants?

A. Bacillus thuringiensis

B. Agrobacterium tumifaciens

C. Pseudomonas putida

D. All of these

Answer: b

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