BIOTECHNOLOGY

Q1: The tumour inducing capacity of Agrobacterium tumaefaciens is located in large extra chromosomal plasmid and called

(1) Ti - plasmid

(2) Ri – plamid

(3) Lambda phage

(4) Plasmid PBR-322

Q2: Select the incorrect statement for continuous culture system–

(1) In this used medium is drained out from one side while fresh medium is added from other side.

(2) In this cells are maintained in their physiologically most active lag phase of growth.

(3) It produces larger biomass.

(4) It shows higher yields of desired product.

Q3: The C-peptide is:

(1) not present in proinsulin

(2) present in mature insulin

(3) removed during maturation of insulin

(4) also present in artificial insulin

Q4: In presence of chromogenic substrate recombinant bacteria gives

(1) Red coloured colonies

(2) Colourless colonies

(3) Blue colonies

(4) Green colonies

Q5: Which of the following bacteria are known as 'natural genetic engineers of plants' as gene transfer is happening in nature without human interference?

(1) Azotobacter

(2) Agrobacterium tumefaciens

(3) Esherichia coli

(4) Rhizobium

Q6: During heat shock to the bacterium , the temperature used for giving thermal shock is:

(1) 82°C

(2) 109°C

(3) Liquid nitrogen

(4) 42°C

Q7: Which of the following technique is based upon the principles of antigen-antibody interaction?

(1) PCR

(2) Elisa

(3) Recombinant DNA technology

(4) RNA interference

Q8: Plasmid used to make the first recombinant DNA was isolated from which bacterium:

(1) E. Coli

(2) Salmonella typhimurium

(3) Agrobacterium

(4) Streptococcus

Q9: Which of the following vectors are used to deliver a desirable gene into animals and plant cells, respectively?

(1) Ti plasmid and retroviruses

(2) Retroviruses and Ti plasmid

(3) Bacteriophage and pBR322

(4) pBR322 and bacteriophage

Q10: After the formation of the product in the bioreactors, it undergoes through separation and purification processes before a finished product is ready for marketing. These processes are collectively referred to as

(1) Upstream processing

(2) Downstream processing

(3) Elution

(4) Transformation

Q11: In the year X the two enzymes responsible for restricting the growth of bacteriophage in Y were isolated. One of these added methyl groups of DNA, while the other cut DNA.

Choose the correct option which correctly fills up the blanks X and Y is

(1) X – 1963; Y – Haemophilus influenzae

(2) X – 1963; Y – Escherichia coli

(3) X – 1983; Y – Haemophilus influenzae

(4) X – 1983; Y – Excherichia coli

Q12: A gene whose expression helps to identify transformed cell is known as:

(1) Vector

(2) Plasmid

(3) Structural gene

(4) Selectable marker

Q13: Which of the following is not used in polymerase chain reaction?

(1) Taq polymerase (2) dNTPs

(3) Primers (4) Ca^{2+}

Q14: How many recommended therapeutic are marketed in India?

(1) 30 (2) 12

(3) 21 (4) 14

Q15: During isolation of DNA, addition of which of the following causes precipitation of purified DNA?

(1) Chilled ethanol

(2) Ribonuclease enzyme

(3) DNA polymerase

(4) Proteases

Q16: Which of the following statements are incorrect option?

(i) Genetic engineering is also called recombinant DNA technology.

(ii) Bacteriophage is not used as vector.

(iii) MALAYALAM is a palindrome

(iv) Ethidium bromide cannot be used for staining DNA.

(1) (i) and (ii) **(2) (ii) and (iv)**

(3) All of these **(4) None of these**

Q17: Which of the following statements (i-v) is/ are incorrect?

(i) Recombinant DNA technology is used to improve crop plants by increasing their productivity, by making them more nutritious and by developing disease resistant.

(ii) Bt cotton is resistant to bollworm infestation.

(iii) Bacillus thuringiensis form cry protein during any phase of their growth.

(iv) Bacillus thuringiensis is not harmed by self cry protein because of its occurrence as protxin(inacitive) .

(v) Protoxin cry protein is changed into active cry protein in the stomach of insects due to alkaline pH in stomach.

(1) Only (iii)
(2) (i) and (iv)
(3) All of these
(4) None of these

Q18: Which technique would be completely curative in SCID/ADA deficiency?

(1) Gene therapy in adult stage.

(2) Gene therapy in embryonic stage.

(3) Bone marrow transplantation

(4) Enzyme replacement therapy

Q19: GEAC stands for

(1) Genome Engineering Action Committee

(2) Ground Environment Action Committee

(3) Genetic Engineering Approval Committee

(4) Genetic and Environment Approval Committee

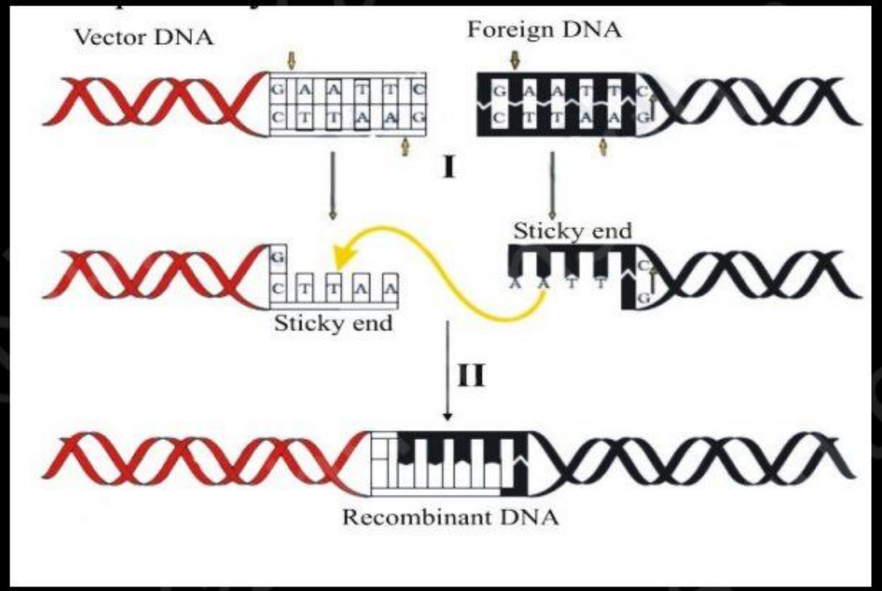
Q20: Steps of rDNA formation given in following figure. Name the enzymes involved in Steps I and II respectively:

(1) Eco RI and DNA ligase

(2) Bam HI and Restriction Endonuclease

(3) Exonuclease and Bam HI

(4) Bam HI and DNA ligase



Q21: Which of the following is correct match?

(1) Insulin – SCID disease

(2) ADA gene – Diabetes

(3) α -1 antitrypsin – Cancer

(4) Golden Rice – Vitamin – A

Q22: Bt toxin genes have been expressed in plants in order to provide resistance against

(I) Lepidopterans and fungi

(II) Animals and bacteria

(III) Bacteria and fungi

(IV) Coleopterans and dipterans

(V) Lepidoterans

(1) (II) and (III) **(2) (I), (II) and (IV)**

(3) (III) and (V) **(4) (IV) and (V)**

Q23: Which of the following genes were introduced in cotton to protect it from cotton bollworms

(1) CryAc and CryAb

(2) BtAc and BtAb

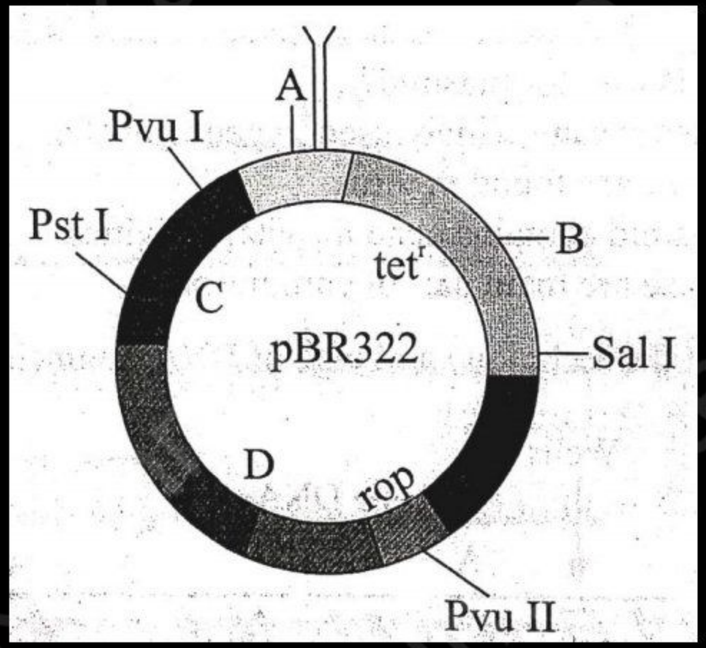
(3) CrylAc and CryllAb

(4) Nif genes

Q24: Identify A, B C and D in the given figure of E.coli cloning vector pBR 322 and select the correct option:

ANSWER: 4

	A	B	C	D
(1)	Hind I	EcoRI	amp^R	ori
(2)	Hind I	BamH I	kan^R	amp^R
(3)	BamH I	Pst I	Ori	amp^R
(4)	EcoRI	BamH I	amp^R	ori



Q25: In RNAi, genes are silenced using

(1) ssDNA (2) dsDNA

(3) dsRNA (4) ssRNA

Q26: What is the advantage in clinical use of humulin (human insulin produced through rDNA technique) over the use of conventional ox or pig insulin

(1) It does not cause immunological problems

(2) It is produced by E.coli in our intestine

(3) It is cheaper for the patient

(4) There is no advantage

Q27: The taq polymerase enzyme is obtained from

(1) Thermus aquaticus

(2) Thiobacillus ferroxidans

(3) Bacillus subtillis

(4) Pseudomonas putida

Q28: What is the criterion for DNA fragments movement on agarose gel during gel electrophoresis

(1) The larger the fragment size, the farther it moves

(2) The smaller the fragment size, the farther it moves

(3) Positively charged fragment move to farther end

(4) Negatively charged fragments do not move M

Q29: Which of the following bacteria is not a source of restriction endonuclease?

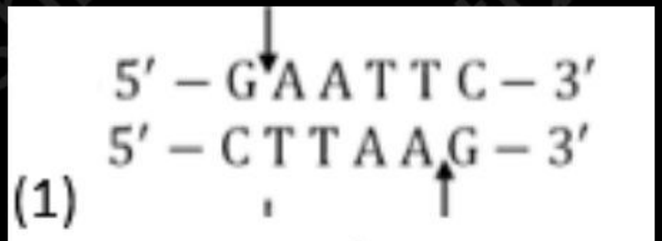
(1) Haemophilus influenza

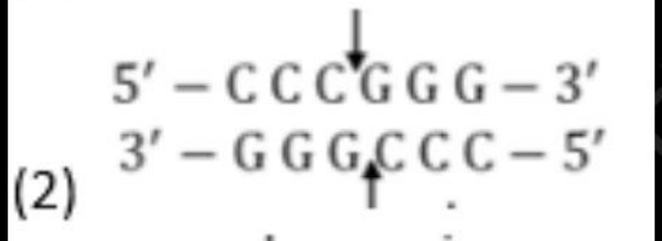
(2) Escherichia coli

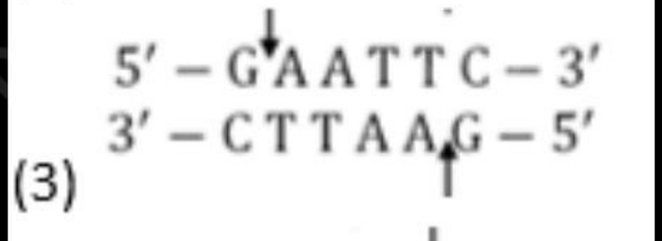
(3) Agrobacterium tumefaciens

(4) Bacillus amyloliquefaciens

Q30: Which of the following represents a correct palindromic sequence recognized by EcoRI?

(1)


(2)


(3)


(4)


Q31: In a polymerase chain reaction, temperature required by

(1) Denturation (94^0C) → Annealing (40^0C) →Extension(72^0C)

(2) Denaturation (40^0C) → Annealing(72^0C) →Extension (94^0C)

(3) Denaturation (94^0C) →Annealinm(72^0C) →Extension (40^0C)

(4) Denaturation (72^0C) → Annealing (94^oC) → Extension (40^0C)

Q32: Match the column I with column II:-

	Column I		Column II
A	$\alpha - 1$ antitrypsin	I	Molecular diagnosis
B	Rosie cow	II	biotheft
C	Biopiracy	III	Alpha lactalbumin
D	P.C.R	IV	Emphysema

(1) A-IV, B-III, C-II, D-I

(2) A-I, B-II, C-III, D-IV

(3) A-II, B-IV, C-I, D-III

(4) A-IV, B-II, C-III, D-I

Q33: Polymerase Chain Reaction:

(1) Can detect HIV

(2) Can detect very low amounts of DNA

(3) Can detect mutations in gene in suspected cancer patients

(4) All the above