Gujarat Biotechnology Research Centre
Scientist – B (Group-1) Marine Biotechnology Mains

Question Paper

Exam Date: 30 April 2023 **Time: 04:00 pm to 06:00 pm**

1	Which was the first restriction endonuclease enzyme discovered?				D
	A	*ECoR*II	B	*ECoR*I	
	C	*Hind*I	D	*Hind*II	
2	What is the source of *Bam*H1 restriction endonuclease?				A
	A	*Bacillus amyloliquefaciens*	B	*Pseudomonas aeruginosa*	
	C	*Thermus aquaticus*	D	*Arthrobacter luteus*	
3	Which among the following is a palindromic sequence?				B
	A	GGTAAC	B	GGTACC	
	C	GGCGGC	D	GCTAAC	
4	The usual length of primer used in PCR is				D
	A	>30 nucleotide	B	< 10 nucleotide	
	C	30-40 nucleotide	D	20-30 nucleotide	
5	Marmur and Doty equation is expressed as				C
	A	Tm = 69.3+ 0.41(T C)	B	Tm = 69.3+ 0.41(AT)	
	C	Tm = 69.3+ 0.41(G C)	D	Tm = 69.3+ 0.41(G T)	
6	Calf intestinal alkaline phosphatase catalyzes the removal of				A
	A	Phosphate from 5′ end	B	Phosphate from 3′ end	
	C	Hydroxy from 5′ end	D	Hydroxy from 3′ end	
7	During DNA synthesis the formation of diester bond between two deoxynucleotide residues to fill the gaps is done by				D
	A	DNA polymerase	B	Exonuclease	
	C	Endonuclease	D	DNA ligase	
8	Hyperchromicity is				B
	A	Decrease in the absorbance of DNA in UV region upon denaturation	B	Increase in the absorbance of DNA in UV region upon denaturation	
	C	Increase in the absorbance of DNA in visible region upon denaturation	D	Decrease in the absorbance of RNA in visible region upon denaturation	
9	Northern blotting is done for the detection of				A
	A	Ribonucleic acid	B	Deoxyribonucleic acid	
	C	Proteins	D	Polysaccharids	
10	SYBR green binds to …… and used in ……				A
	A	DNA, qRT-PCR	B	RNA, qRT-PCR	
	C	DNA, RACE	D	Semiquantitative	
11	Transcriptome refers to				D
	A	DNA synthesis	B	RNA transcript of single gene	
	C	translation	D	RNA transcript of the whole cell	
12	Which among the following is a fluorescence dye binds to nucleic acid?				A
	A	Acridine orange	B	Crystal violet	

	C	Safranine	D	Malachite green	
13	Which among the following is a bioluminescence marine bacteria?				B
	A	*Chromobacterium* Spp.	B	*Vibrio fischeri*	
	C	*Paenibacillus vortex*	D	Bacillus Spp.	
14	Cosmids are plasmid that contains				A
	A	Λ cos	B	P1 Cos	
	C	T7 ori	D	Reverase transcriptase	
15	pUC 19 vector contains				A
	A	*Amp, lacZ*	B	*Kan, LacZ*	
	C	Only *lacZ*	D	*OriC* of phase	
16	"5-Bromo-4-Chloro-3-Indolyl β-D-Galactopyranoside" is commonly known as				D
	A	IPTG	C	NADP	
	B	ADP	D	X-gal	
17	Transcription of gene is initiated at				B
	A	Operator	B	Promoter	
	C	OriC	D	Structural gene	
18	*Escherichia coli* genome contain around				A
	A	4500 genes	B	1500 genes	
	C	10^4 genes	D	10^6 genes	
19	DNA linkers are Oiligonucleotides with				C
	A	one blunt end	B	one blunt and one sticky end	
	C	two blunt ends	D	two sticky sticky ends	
20	Taq polymerase was first isolated from is from				C
	A	*Pyrococcus furiosus*	B	*Halobacterium salinarum*	
	C	*Thermus aquaticus*	D	*Deinococcus radiodurans*	
21	The major reserve food in marine brown algae is				D
	A	Cellulose	B	Starch	
	C	Alginate	D	Laminarin	
22	*Zostera* is a				B
	A	Marine algae	B	Seagrass	
	C	Starfish	D	Squid	
23	The main Omega-3 fatty acids are				A
	A	Alpha-linolenic acid, eicosapentaenoic acid and docosahexaenoic acid	B	Docosahexaenoic acid, oleic acid and stearic acid	
	C	Alpha-linolenic acid, stearic acid and eicosapentaenoic acid	D	Oleic acid, stearic acid and linoleic acid	

24	At isoelectric point the net charge on amino acid is				B
	A	Positive	B	Zero	
	C	Negative	D	Depends on the number of COOH groups	
25	Yeast integrating plasmids lacks				D
	A	Multiple cloning sites	B	Promoter	
	C	Selection marker	D	ORI	
26	Which is the most abundant mangrove species found in Gujarat?				D
	A	*Excoecaria agallocha*	B	*Sonneratia apetala*	
	C	*Acanthus illicifolius*	D	*Avicennia marina*	
27	*Laguncularia racemose* is an example of				A
	A	White mangrove	B	Red mangrove	
	C	Black mangrove	D	Grey mangrove	
28	Boron is present in quorum sensing molecule				A
	A	autoinducer-2 from *Vibrio* species	B	Acyl homoserine lactone from *Pseudomonas aeruginosa*	
	C	Autoinducing peptide from *Bacillus subtilis*	D	Autoinducing peptide from *Staphylococcus aureus*	
29	Fouling caused by organisms such as mussels and barnacles is referred as				B
	A	Biofilm	B	Macrofouling	
	C	Quorum sensing	D	Microfouling	
30	The Marine National Park-Priotan was declared in year				A
	A	1982	B	1986	
	C	1992	D	1996	
31	The interconversion of glyceraldehyde 3-phosphate and dihydroxyacetone phosphate is catalyzed by				B
	A	hexokinase	B	triose phosphate isomerase	
	C	glucose-6-phosphate dehydrogenase	D	Phosphoglycerate mutase	
32	If 10.0 µg of pure carbonic anhydrase catalyzes the hydration of 0.30 g of CO_2 in 1 min at 37 °C at V_{max}, what is the turnover number (k_{cat}) of carbonic anhydrase (in units of min^{-1})?				A
	A	19.54	B	11.23	
	C	12.34	D	09.82	
33	Coral reefs are made up of				A
	A	$CaCO_3$	B	$CaPO_4$	
	C	$Ca(OH)_2$	D	$CaCl_2$	
34	The following equation is $\frac{1}{V0} = \frac{Km}{Vmax[S]} + \frac{1}{Vmax}$				A
	A	Lineweaver-Burk equation	B	Michaelis-Menten equation	
	C	Specificity constant	D	Briggs-Haldane equation	

35	A/An …… is one in which the binding of a ligand to one site affects the binding properties of another site on the same protein				
	A	Inhibitor protein	B	Allosteric protein	B
	C	Co-enzyme	D	Co-inhibitor	
36	oriC is …… in *Escherichia coli*				C
	A	DNA replicase	B	Topoisomerase	
	C	Origin of replication	D	Promoter	
37	The gene in *trp* Operon are transcribed as single mRNA and are arranged in sequence as				A
	A	*trpEDCBA*	B	*trp ABCDE*	
	C	*trp EFGHA*	D	*trp AHGFE*	
38	Thomas Robert Cech and Sidney Altman won the Nobel prize in 1989 for the discovery of				D
	A	Catalytic properties of DNA	B	Catalytic properties of proteins	
	C	Catalytic properties of trypsin	D	Catalytic properties of RNA	
39	Hyaluronic acid is a polymer of				A
	A	D-glucuronic acid and N-acetylglucosamine	B	D-glucuronic acid and N-acetyl-D-galactosamine-4-O-sulfate	
	C	N-acetyl-hexosamine and D-mannose	D	N-acetyl-hexosamine	
40	Ulvan obtained from *Ulva lactuca* is an example of				C
	A	Neutral monosaccharide	B	Neutral polysaccharide	
	C	Sulfated polysaccharide	D	Sulfated monosaccharide	
41	Net primary productivity (NPP) is equal to				D
	A	Gross primary productivity – total respiration	B	Gross primary productivity – rate of respiration	
	C	Total respiration – Gross primary productivity	D	Gross primary productivity – photoautotroph respiration	
42	Protein associated with cold adaptation is known as				A
	A	AFP	B	GFP	
	C	ALP	D	DHA	
43	Fish wastes are major source of				C
	A	Calcium	B	Antimicrobial peptides	
	C	Collagen	D	Polysaccharides	
44	Which of the following statement is closely related to Cephalosporin?				A
	A	Antibiotics from marine fungi	B	Antibiotic isolated from marine sponges	
	C	Antibiotic isolated from terrestrial bacteria	D	Bioactive compound isolated from marine environment	
45	Self-splicing of group I and II introns is an example of				D
	A	Abzymes	B	Riboswitches	
	C	Protein structure	D	Ribozymes	

46	Sudden and Heritable change in gene is known as				A
	A	Mutation	B	Strain improvement	
	C	Transformation	D	Transduction	
47	Which bivalent cation is cofactor for DNA polymerase?				B
	A	Ca^{2+}	B	Mg^{2+}	
	C	Hg^{2+}	D	Cd^{2+}	
48	The emerging man-made marine pollutants is				A
	A	Microplastic	B	PAHs	
	C	Heavy metal	D	Petroleum	
49	In relation to antibiotic resistance XRD stands for				B
	A	Multidrug resistance	B	Multidrug sensitivity	
	C	Extensively drug resistance	D	Extreme drug sensitivity	
50	Seafloor of ocean is known as				A
	A	Abyssal zone	B	Pelagic zone	
	C	Mesopelagic zone	D	Epipelagic zone	
51	The sequence alignment tool "MEGA" stands for				D
	A	Microbial Evolutionary Gene Analysis	B	Microbial Evolutionary Genetics Analysis	
	C	Molecular Evolutionary Gene Analysis	D	Molecular Evolutionary Genetics Analysis	
52	Which among the following marine fishes lack jaws?				D
	A	Bony fishe	B	Coelocanth	
	C	Ratfishes	D	Lampreys	
53	Dolphin belongs to which order?				B
	A	Lamniformes	B	Cetacea	
	C	Decapoda	D	Cypriniformes	
54	Ban Creek is situated at				A
	A	Bharuch District	B	Dang	
	C	Rajkot	D	Surat	
55	Source of green fluorescence protein is				D
	A	*Vibrio fischeri*	B	*Lampyridae*	
	C	*Octopus vulgaris*	D	*Aequorea victoria*	
56	Which of the following constitute a major fraction of elements in sea water?				B
	A	Sodium	B	Chloride	
	C	Calcium	D	Magnesium	
57	National Biodiversity Authority was established in year				C
	A	2000	B	2004	
	C	2003	D	2005	
58	Nucleosome is made up of				B
	A	DNA, Histone core protein	B	DNA, Histone core protein, linker H1	

	C	RNA, Histone core protein	D	DNA	
59	Metagenomics is the study of genetic material recovered from				A
	A	Environment	B	Plant	
	C	Bacteria	D	Virus	
60	β-sheets in protein are stabilized by				B
	A	Hydrophobic bond	B	Hydrogen bond	
	C	Ionic bond	D	Disulfide bond	
61	Which of the following technique does not used any fluorescence probe?				A
	A	FTIR	C	FISH	
	B	CSLM	D	qRT-PCR	
62	Discodermolide is an anticancer drug first isolated from				C
	A	Marine bacteria	B	Marine fungi	
	C	Marine fishes	D	Sponges	
63	Red tide caused by				A
	A	*Gonyaulax*	B	Sea lettuce	
	C	Irish Moss	D	Macrocystis	
64	Which of the following is not a coastal state of India?				B
	A	Gujarat	B	Goa	
	C	Kerala	D	Puducherry	
65	What is "FORV Sagar Sampada"?				A
	A	Fishery Research vessel	B	Marine diversity of India Handbook	
	C	Marine Park	D	Indian Navy ship	
66	Which of the following is a intracellular second messengers?				D
	A	Glycine	B	Glutamate	
	C	Acetylcholine	D	IP3	
67	In prokaryotes which rRNA has peptidyl transferase activity?				B
	A	5S	B	23S	
	C	16S	D	30S	
68	Which among the following is not a pyrimidine?				D
	A	Uracil	B	Cytosine	
	C	Thymine	D	Adenine	
69	In eukaryaotes the 3′ terminus of mRNA have				A
	A	Poly(A) sequence	B	Poly(T) sequence	
	C	Poly(G) sequence	D	Poly(U) sequence	
70	Which among the following is a housekeeping gene?				A
	A	*recA*	B	*lacZ*	
	C	*agrA*	D	*lexA*	
71	Ri plasmid are found in				D

	A	*Nostoc*	B	Azolla	
	C	*Rhizobium etli*	D	*Agrobacterium tumefaciens*	
72	Which among the following is involved in the elongation process in Eukaryotes?				B
	A	IF-1	B	eEF1A	
	C	eIF-1	D	eEF2T	
73	Extracellular polymeric substance of biofilm contains				A
	A	Polysaccharides, proteins, DNA	B	Lipid, DNA, Proteins	
	C	Only polysaccharide	D	Only proteins	
74	16S rRNA gene is about				C
	A	800 bp	B	2000 bp	
	C	1550bp	D	1250 bp	
75	Catechol is produced during the degradation of				B
	A	Polyethylene	B	Naphthalene	
	C	Amide	D	Gallic acid	
76	Salinity of the sweater is				C
	A	25 ppt	B	30 ppt	
	C	35 ppt	D	40 ppt	
77	Which of the following statement is correct about DNA methylation?				C
	A	Post-translation modification	B	DNA replication	
	C	Heritable epigenetic mark	D	Mutation	
78	*Balaenoptera musculus* is				B
	A	Shark	B	Blue whale	
	C	Sea horse	D	Star fish	
79	For drug sensitivity test, the microbial culture is generally taken from				B
	A	Lag phase	B	Log phase	
	C	Stationary phase	D	Decline phase	
80	Bioluminescence in *Vibrio harveyi* is due to …… regulated by…….				D
	A	Metabolism, LasR	B	Metabolism, LuxR	
	C	Quorum sensing, LexR	D	Quorum sensing, LuxR	
81	Z, A, B and C are forms of				C
	A	Protein	B	RNA	
	C	DNA	D	Enzymes	
82	In eukaryotes which DNA polymerase initiates DNA replication (priming)?				B
	A	Pol ε	B	Pol α	
	C	Pol δ	D	Pol β	
83	Abundant bacteria in hydrothermal vents are				B
	A	Photolithotrophs	B	Chemolithotrophs	
	C	Chemoautotrophs	D	Photoautotroph	

84	*Vent, Pfu* and *Taq* term is associated with				C
	A	DNA ligase from bacteria	B	Reverse transcriptase	
	C	DNA polymerase used in PCR	D	DNA helicase	
85	AUG is a/an				C
	A	Initiation codon codes for methionine	B	Initiation codon codes for alanine	
	C	Termination codon	D	Codon for cysteine	
86	Which of the following combination is correct?				A
	A	Ammonium persulfate: SDS PAGE	B	Ammonium persulfate: Density gradient centrifugation	
	C	Tetramethyl ethylenediamine: PBS buffer	D	Tetramethyl ethylenediamine: TE buffer	
87	Which of the following is a sulfur-containing amino acid in mammals?				D
	A	Alanine	B	Valine	
	C	Tyrosine	D	Cysteine	
88	Which of the following antibiotic is effective only against gram-positive bacteria?				D
	A	Kanamycin	B	Piperacillin	
	C	Meropenem	D	Vancomycin	
89	Coral reefs are formed by				B
	A	Sponges	B	Polyps	
	C	Marine bacteria	D	Sea weeds	
90	Phenanthrene is a/an				C
	A	Saturated hydrocarbon	B	Aliphatic hydrocarbon	
	C	Polycyclic aromatic hydrocarbon	D	Di-cyclic aromatic hydrocarbon	
91	Which among the following is a shipbreaking yard?				A
	A	Alang	B	Tulsishyam	
	C	Sambhar	D	Navsari	
92	In microbial fuel cells, mediators assist in				B
	A	Cell growth	B	Electron transfer	
	C	Metabolism	D	Current flow	
93	In genetic mapping AFLP stands for				B
	A	Active fragment length polymorphism	B	Amplified fragment length polymorphism	
	C	Amplicon fragment length polymorphism	D	Restriction fragment length polymorphisms	
94	5'-GAATTC-3′ is restriction site for				A
	A	*Eco*RI	B	*Sap*I	
	C	*BCG*I	D	*Hind*III	
95	Among the following which method is best suited for polysaccharide composition				D
	A	Sanger	B	FPLC	
	C	NSG	D	MALDI TOF MS	

96	The nutrients responsible for coastal eutrophication				C
	A	Nitrogen, Silica	B	Phosphorus, Magnesium	
	C	Nitrogen, Phosphorous	D	Magnesium, Calcium	
97	Dakshin Gangotri is the scientific base station of India at				B
	A	Himalaya	B	Antarctica	
	C	Iceland	D	Southern Ocean	
98	Organisms adapted to grow in the crevices of the rock are				B
	A	Halophiles	B	Endolith	
	C	Thermophiles	D	Psychrophiles	
99	The large-scale study of genes is called _____				A
	A	Genomics	B	Metabolomics	
	C	Proteomics	D	Transcriptomics	
100	Thermophiles genome have				A
	A	Higher GC	B	Higher AT	
	C	Lower GC	D	Higher AU	
101	The ocean's average pH is around				
	A	7.1	B	8.1	B
	C	8.7	D	9.1	
102	Phycology is the study of				
	A	Fungi	B	Lichen	C
	C	Algae	D	Bacteria	
103	Ocean acidification is				
	A	Increase in pH of seawater	B	Decrease in pH of seawater	A
	C	Increase in temperature of seawater	D	Decrease in temperature of seawater	
104	IMTA stands for				
	A	Integrated multitrophic aquaculture	B	Internal multitrophic aquaculture	A
	C	International multitrophic aquaculture	D	Integrated multitrophic aquatic system	
105	Eutrophication is due to				
	A	High P & low N content	B	Low N & P content	D
	C	High N and low P content	D	High N & P content	
106	Phytoplankton comprises				
	A	Cyanobacteria and phylogenetically diverse eukaryotic algae	B	Cyanobacteria and fungi	A
	C	Cyanobacteria and bacteria	D	Eukaryotic algae and fungi	
107	The maximum biodiversity can be found in				
	A	Coral reef ecosystem	B	Mangrove ecosystem	A
	C	Seagrass ecosystem	D	Algal ecosystem	
108	The coastline of Gujarat is				

	A	1000 Km	B	1600 Km	B
	C	1300 Km	D	1800 Km	
109	Alkaliphiles grow at				
	A	High pH	B	Low pH	A
	C	Low temperature	D	High temperature	
110	The major cause of marine pollution is				
	A	Rapid industrialization	B	Ocean acidification	A
	C	Greenhouse gas emission	D	Increasing population	
111	Agar is obtained from				
	A	Red seaweed	B	Green seaweed	A
	C	Brown seaweed	D	Microalgae	
112	Favorable growth medium for marine microbes is				
	A	Zobell Marine Agar	B	LB agar	A
	C	YEPD agar	D	PD agar	
113	Algal biofuels are:				
	A	First generation	B	Second generation	C
	C	Third generation	D	Fourth generation	
114	An organism that survives in a high-pressure environment is known as:				
	A	Acidophile	B	Thermophile	C
	C	Barophile	D	Neutrophile	
115	Shrimp farming requires:				
	A	Low salinity water	B	Freshwater	A
	C	High salinity water	D	None of the above	
116	Biotechnology which uses resources from aquatic living organisms to develop new commercially viable products or applications is known as:				
	A	Purple biotechnology	B	Blue biotechnology	B
	C	White biotechnology	D	Green biotechnology	
117	Extremozymes are produced from				
	A	Alkaliphiles	B	Thermophiles	D
	C	Acidophiles	D	All of the above	
118	Biotechnology field which applied to industrial processes is:				
	A	Red Biotechnology	B	Blue Biotechnology	D
	C	Green biotechnology	D	White Biotechnology	
119	The aquatic ecosystem is mainly of:				
	A	Two types	B	One type	A
	C	Three types	D	Four types	
120	Animal shell, coal, and petroleum are related to				
	A	Nitrogen cycle	B	Carbon cycle	B

	C	Phosphorus cycle	D	Oxygen cycle	
121	Marine pollution can be reduced effectively by:				
	A	Introducing Sewage treatment plants	B	Manual cleaning of pollutants	A
	C	Banning the license of industries	D	None of the above	
122	Archaebacteria are				
	A	Methane-producers	B	Extreme halophiles	D
	C	Thermoacidophiles	D	All of the above	
123	What is the correct order of staining reagents in Gram-Staining?				
	A	Crystal violet, alcohol, iodine solution, safranin	B	Crystal violet, iodine solution, alcohol, safranin	B
	C	Crystal violet, safranin, alcohol, iodine solution	D	Iodine solution, crystal violet, alcohol, safranin	
124	NAG and NAM of the peptidoglycan are linked by				
	A	beta-(1,4) glycosidic linkage	B	alpha-(1,4) glycosidic linkage	A
	C	alpha-(1,6) glycosidic linkage	D	beta-(1,6) glycosidic linkage	
125	In which of the following phase secondary metabolites are produced during growth?				
	A	Lag phase	B	Log phase	C
	C	Stationary phase	D	Death phase	
126	The protein from which hook and filaments of flagella are composed of, is				
	A	Keratin	B	Flagellin	B
	C	Gelatin	D	Casein	
127	The coastal adjunct of the marine ecosystem is				
	A	River	B	Stream	D
	C	Lake	D	Estuary	
128	Organisms found on, in, or in close contact with the bottom region of bodies of water				
	A	Limnos	B	Benthos	B
	C	Autotrophs	D	Heterotrophs	
129	High BOD of a water sample indicates				
	A	High polluted water	B	Less polluted water	A
	C	Presence of less microbes	D	High pH	
130	Alkanivorex is a genus of				
	A	Alkane degrading marine bacteria	B	Alkyne degrading marine bacteria	A
	C	Alkene-degrading marine bacteria	D	Polysaccharide degrading bacteria	
131	The presence of sulphated polysaccharide is a characteristic of				
	A	Microalgae	B	Seaweeds	B
	C	Cyanobacteria	D	Phytoplankton	
132	The suitable sweater temperature for the coral reef formation is				
	A	Around 5 °C	B	Around 10 °C	A

	C	Around 15 °C	D	Around 20 °C	
133	The interaction between biotic (living) and abiotic (non-living) factors is known as				
	A	Ecology	B	Environment	C
	C	Ecosystem	D	Niches	
134	Which one is not the example of an abiotic factor				
	A	Sunlight	B	Nutrients dissolved in water	D
	C	Oxygen	D	microbes	
135	Algae are the source of:				
	A	Biostimulant	B	Protein	D
	C	Biofuels	D	All of the above	
136	The second-largest ocean in the world which has "S" shape is				
	A	Indian Ocean	B	Atlantic Ocean	B
	C	Southern Ocean	D	Arctic Ocean	
137	NIO and CSMCRI are the:				
	A	ICAR laboratories	B	ICMR laboratories	C
	C	CSIR laboratories	D	IIT laboratories	
138	Sufficient light for photosynthesis with a major zone for primary production in the ocean occurs in				
	A	Mesopelagic zone	B	Bathypelagic zone	C
	C	Epipelagic zone	D	Abyssopelagic zone	
139	A portion of a continent that is submerged under an area of relatively shallow water				
	A	Continental shelf	B	Shelf sea	A
	C	Continental slope	D	Continental rise	
140	A broad and multi-disciplinary approach that harnesses scientific understanding and concepts from hydrodynamics, biology, oceanography, and bio-geography to design and implement engineered solutions that are ecologically self-sustaining is known as				
	A	Environmental engineering	B	Ecological engineering	B
	C	Climate engineering	D	Ocean engineering	
141	The first antibiotic substance obtained from autotrophic organisms is				
	A	Penicillin	B	Chlorellin	B
	C	Streptomycin	D	Amoxicillin	
142	Sargassum is a source of				
	A	Agar	B	Ulvan	C
	C	Alginate	D	Carrageenan	
143	Baker's yeast is:				
	A	*Clostridium acetibutylicum*	B	*Candida albicans*	D
	C	*Rhodotorula rubra*	D	*Saccharomyces cerevisiae*	
144	The number of coastal states in India is:				

	A	6	B	7	D
	C	8	D	9	
145	The downstream process is a combination of:				
	A	Separation, extraction, and purification of the product	B	Extraction, separation, and purification of the product	B
	C	Separation and purification of the product	D	Extraction and separation of the product	
146	The best effective method to purify protein is:				
	A	Ion exchange chromatography	B	Dialysis	A
	C	Ammonium sulphate precipitation	D	Solvent extraction	
147	Production of peptides from protein is a part of the:				
	A	Downstream process	B	Upstream process	B
	C	Separation	D	Purification	
148	If the number of steps in the downstream process is more than				
	A	CapEx will be high	B	OpEx will be high	A
	C	CapEx will be low	D	OpEx will be low	
149	Mannitol is a reserved food found in				
	A	*Ulva*	B	*Fucus*	B
	C	*Kappaphycus*	D	*Sargassum*	
150	Example of a primary producer is				
	A	Diatom	B	Whale	A
	C	Shark	D	Coral reef	
151	All the food chain in a single ecosystem is known as				
	A	Multiple food chains	B	Ecological pyramid	C
	C	Food web	D	Food ecosystem	
152	Extraction of value-added products along with biofuel production in a sequential manner is:				
	A	Bioeconomy	B	Biorefinery	B
	C	Bioprocess	D	Biotechnology	
153	The straightforward method of binary fission explains how bacteria				
	A	Evolve	B	Grow	D
	C	Move	D	Reproduce	
154	The term “Blue Revolution” is linked to				
	A	Fuel production	B	Fish production	B
	C	Seed production	D	Milk production	
155	National Fisheries Development Board is located in				
	A	Gujarat	B	Rajasthan	C
	C	Hyderabad	D	Chennai	

156	Central Institute of Brackishwater Aquaculture is located in				
	A	Mumbai	B	Goa	D
	C	Vizag	D	Chennai	
157	Methanogens are used to produce				
	A	Biogas	B	Biohydrogen	A
	C	Biodiesel	D	Biobutanol	
158	Fungi are an example of				
	A	Primary consumer	B	Secondary consumer	D
	C	Tertiary consumer	D	Decomposer	
159	Algal lipid extraction is generally carried out using				
	A	Acid	B	Solvent	B
	C	Alkali	D	Water	
160	Microalgae is a good source of				
	A	Protein and lipid	B	Carbohydrate and pigment	A
	C	Minerals and lipid	D	Protein and minerals	
161	Which of the following genus of bacteria is generally found in marine water				
	A	*Aeromonas*	B	*Vibrio*	B
	C	*Pseudomonas*	D	*Flavobacterium*	
162	The biosafety level that covers laboratories which work with agents associated with human diseases that pose a moderate health hazard is				
	A	BSL1	B	BSL2	B
	C	BSL3	D	BSL3	
163	The smallest photosynthetic organism on Earth is				
	A	*Cyanobacteria*	B	*Chlorella*	C
	C	*Prochlorococcus*	D	*Spirulina*	
164	Which of the following is not a source of water pollution?				
	A	Industrial effluent	B	Agricultural runoff	D
	C	Domestic sewage	D	Fossil fuel	
165	What is the main cause of global warming				
	A	Industrialization	B	Ocean acidification	A
	C	Increasing population	D	None of the above	
166	Teichoic acids are present in the cell wall of				
	A	Bacteria	B	Algae	A
	C	Virus	D	Protozoa	
167	Which of the following is an example of a heavy metal pollutant				
	A	Benzene	B	Toluene	C
	C	Mercury	D	Chloroform	
168	Earth's largest ecosystem is				

	A	Lithosphere	B	Biosphere	B
	C	Hydrosphere	D	Biome	
169	An example of natural ecosystem is				
	A	Forest	B	Dam	A
	C	Paddy field	D	Garden	
170	The crystallographic structure, chemical composition, and physical properties of a material can be studied by				
	A	HPLC	B	AFM	D
	C	GPC	D	XRD	
171	Novozyme is the company known to produce mainly				
	A	Amino acids	B	Biofuel	C
	C	Enzymes	D	Probiotics	
172	Whiteleg Shrimp is also known as				
	A	*Litopenaeus vannamei*	B	*Palaemon serratus*	A
	C	*Pandalus montagui*	D	*Stenopus hispidus*	
173	Fucoxanthin is found as an accessory pigment in the chloroplasts of				
	A	Red algae	B	Green algae	C
	C	Brown algae	D	None of the above	
174	The alga that is found in the snowfields of the alps and polar regions all over the world is				
	A	*Ulva lactuca*	B	*Chlamydomonas nivalis*	B
	C	*Chlorella vulgaris*	D	*Dunaliella salina*	
175	A raceway pond is a shallow artificial pond used in the cultivation of				
	A	Bacteria	B	Virus	C
	C	Algae	D	Mollusks	
176	The marine national park of Gujarat is in				
	A	Dwarka	B	Surat	D
	C	Veraval	D	Jamnagar	
177	Chromatography is used to separate and analyse				
	A	Simple mixture	B	Complex mixture	B
	C	Metals	D	Solvents	
178	An example of oleaginous yeast is				
	A	*Saccharomyces cerevisiae*	B	*Candida albicans*	C
	C	*Yarrowia lipolytica*	D	*Pichia stipitis*	
179	MALDI-TOF MS stands for				
	A	Matrix Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry	B	Marker Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry	A
	C	Molecule Assisted Laser Desorption	D	Model Assisted Laser Desorption	

		Ionization Time of Flight Mass Spectrometry		Ionization Time of Flight Mass Spectrometry	
180	The largest saline water lake in India is				
	A	Fatehsagar lake	B	Pichola lake	D
	C	Nakki lake	D	Chilika lake	
181	A common method for studying bacterial phylogeny and taxonomy is				
	A	NGS	B	16S rRNA	B
	C	18S rRNA	D	CRISPAR	
182	DNSA method is used for				
	A	Protein estimation	B	Lipid estimation	D
	C	Non reducing sugar	D	Reducing sugar	
183	A suitable example of a renewable source of energy is				
	A	Biomass	B	Solar energy	D
	C	Ocean currents	D	All of the above	
184	An example of biodegradable waste is				
	A	Food waste	B	Plastic	A
	C	Electronic waste	D	Tyre	
185	The major natural source of mercury in the marine environment is				
	A	Fossil fuels	B	Eroding ores	B
	C	Marine plants	D	Marine animals	
186	The process of bioconcentration and biomagnification is collectively known as				
	A	Biodegradation	B	Bioleaching	C
	C	Bioaccumulation	D	Bioabsorption	
187	Mangroves are				
	A	Halophytes	B	Xerophytes	A
	C	Hydrophytes	D	Glycophytes	
188	Brackish water is				
	A	Fresh water only	B	Fresh water and saline water	B
	C	Saline water only	D	All of the above	
189	Seaweeds are				
	A	Microscopic & multicellular	B	Macroscopic and multicellular	B
	C	Microscopic and unicellular	D	Macroscopic and unicellular	
190	Commercially important marine animals are				
	A	Oyster	B	Shrimp	D
	C	Fish	D	All of the above	
191	NIOT is located in				
	A	Mandapam	B	Odisha	C
	C	Chennai	D	Goa	

192	Gujarat is among the top producer of				
	A	Shrimp	B	Oyster	A
	C	Crab	D	Shark	
193	Microbes isolated from hydrothermal vent are generally				
	A	Psychrophiles	B	Pshycrotrophs	D
	C	Mesophiles	D	Thermophiles	
194	The process of repairing sites in nature whose biological communities and ecosystems have been degraded or destroyed is known as				
	A	Environmental restoration	B	Ecological restoration	B
	C	Ecosystem	D	All of the above	
195	*Dunaliella salina* is a unicellular green algae especially found in				
	A	High-temperature environment	B	Hyperalkaline environment	C
	C	Hypersaline environment	D	High-pressure environment	
196	Which of the following is a microbial preservation technique				
	A	Streak plate technique	B	Spread plate technique	D
	C	Pour plate technique	D	Lyophilization technique	
197	Who is considered as a father of marine microbiology				
	A	Claude E. ZoBell	B	Louis Paster	A
	C	Antonie van Leeuwenhoek	D	Edward Jenner	
198	How many sustainable development goals (SDSg) are there				
	A	16	B	17	B
	C	18	D	19	
199	A proof of concept is established in a research laboratory. It falls under				
	A	TRL1-TRL3	B	TRL4-TRL6	A
	C	TRL7-9	D	All of the above	
200	Which amino acids has achiral C atom?				
	A	Glycine	B	Tryptophan	A
	C	Proline	D	Selenomethionine	