### 22735

# A 120 MINUTES

- 1. Dideoxy method of chain termination is used in:
  - A) Sanger's method of DNA sequencing
  - B) Maxam and Gilbert method of DNA sequencing
  - C) Automatic DNA sequencing method developed by Scharifet. al.
  - D) RT- PCR for disease diagnosis
- 2. Identify the statement associated with Southern blotting:
  - A) Used for the attachment of probes to single stranded DNA molecule
  - B) Helping in the comparison of DNA extracted from different sources
  - C) Transfer of DNA fragments from the gel to the nitrocellulose membrane
  - D) Transfer of DNA fragments from the nitrocellulose membrane to buffer
- 3. Which of the following is wrong about International Human Genome Project?
  - A) It was launched in 1990 and completed in 2003
  - B) Maxam Gilbert chemical degradation technique alone is used for DNA sequencing
  - C) It gives new avenues for advances in medicine and biotechnology
  - D) Both Maxam- Gilbert and Sangers methods are used for DNA sequencing
- 4. The phospholipid mainly associated with signal transduction:
  - A) Phophatidylcholine
  - B) Phophatidylethanolamine
  - C) Phophatidyl inositol 4,5 bis phosphate
  - D) cardiolipin
- 5. According to the Michaelis- Menten equation, the Km value denote the:
  - A) Rate of activity of the enzyme
  - B) Turnover number of the enzyme
  - C) The velocity of the enzyme action
  - D) The substrate concentration
- 6. Replication of DNA takes place during:
  - A) M phase of cell cycle B) G1 phase of cell cycle
  - C) G2 phase of cell cycle D) S phase of cell cycle
- 7. Synaptonemal complex formation is the characteristic feature of :
  - A) Leptonema B) Zygonema
  - C) Pachynema D) Diplonema
- 8. The peculiar kind of chromosome re-duplication results in the formation of giant chromosomes is called:
  - A) Endometriosis B) Heterochromatinization
  - C) Gene amplification D) Cell duplication

- 9. Find the wrong statement among the following:
  - A) Bacterial endosymbionts are included in the Volume I of Bergey's manual
  - B) Volume II of Bergey's manual excluded actinomycetes
  - C) All Gram-positive bacteria are included in the Volume III of Bergey's manual
  - D) Actinomycetes are included in the Volume IV of Bergey's manual

#### 10. Match the following:

a.	Alkaloids	1.	Aspe	rgillusniger
b.	Steroids	2.	Clost	ridium sp.
c.	Citric acid	3.	Clavi	icepespurpurea
d.	Acetone	4.	Rhizo	opus
A) C)	a-3, b-4, c-2, d-1 a-3, b-4, c-1, d-2		B) D)	a-2, b-3, c-1, d-4 a-4, b-3, c-2, d-1

#### 11. The role of Class II MHC genes

- A) It encodes glycoproteins expressed on the surface of all nucleated cells
- B) It encodes glycoproteins express primarily on antigen presenting cells
- C) It encodes secretory products associated with complement system
- D) It is associated with the proteins involved in inflammation

### 12. Match the following:

a.	Plague	1.	Clostridium	•
b.	Tetanus	2.	Salmonella s	
c.	Typhoid	3.	Treponema	
d.	Syphilis	4.	Yersinia pest	
A)	a-3, b-1, c-	,	B)	a-4, b-1, c-2, d-3
C)	a-1, b-4, c-		D)	a-4, b-1, c-3, d-2

- 13. The cis elements that control transcription by increasing the rate of transcription and that may present in the upstream or downstream of a gene are called :
  - A) Enhancers B) Promotors
  - C) Co-factors D) Coactivators

### 14. The Pribnow Box is:

- A) AT rich in nature
- B) Present in prokaryotic promoter
- C) Placed at -35 position upstream of start point
- D) Both A and B are correct
- 15. The key event in the development of eye during embryogenesis:
  - A) Formation of optic vesicle
  - B) Thickening of the head surface ectoderm to form the lens placodes
  - C) The physical contact between optical vesicle and the surface ectoderm
  - D) Morphogenesis of lens

- 16. Identify the primary egg membrane that helps in species -specific sperm egg recognition and binding:
  - A) Zona pellucida B) Corona radiata
  - C) Chorion D) Allantois
- 17. In frog blastula, the prospective notochordal cells are derived from:
  - A) The non-pigmented area surrounding the vegetal pole
  - B) Pigmented area surrounding animal pole
  - C) Dorsal side of grey crescent
  - D) Presumptive epidermal ectoderm
- 18. Seasonal back and forth movement of animals between their feeding and breeding grounds is:
  - A) Biorhythm B) Orientation
  - C) Homing D) Migration
- 19. The pheromone that keeps the members of a colony on the alert to face a danger:
  - A) Recognition pheromone B) Alarm pheromone
  - C) Marker pheromone D) Trail pheromone
- 20. The statement which is **not** applicable to Urey- Miller experiment:
  - A) They used a high energy gas chamber filled with water vapour, ammonia, methane and hydrogen
  - B) Energy was provided by electric spark using tungsten electrode
  - C) An oxidizing environment is essential for the abiogenic synthesis of organic molecules
  - D) The interaction of gases resulted in the abiogenic synthesis of organic molecules
- 21. Darwin's book On the Origin of Species was published on:
  - A) 1<sup>st</sup> November 1838 B) 12<sup>th</sup> February 1809
  - C) 24<sup>th</sup> November 1859 D) 19<sup>th</sup> April 1882
- 22. "All heritable variations have their origin in germ cells and a new type of organism arise only from changed type of germ cells". This concept was developed by:
  - A) Jean Baptiste Lamark B) Hugo de Vries
  - C) Charles Darwin D) August Weismann
- 23. Identify the statement that is wrong in connection with Hardy- Weinberg equilibrium:
  - A) Allelic frequencies at an autosomal locus in a population will not change from generation to generation
  - B) Individuals of the population exhibit non-random mating, mutation and migration
  - C) The genotypic frequencies of a population are determined by the allelic frequencies in a predictable way
  - D) A genetic equilibrium will get reestablished within one generation of random mating

- 24. Genetically and phylogenetically unrelated species of organisms under the same environmental conditions evolve and acquire similar morphological features is called:
  - A) Adaptive radiation
- B) Convergent evolution
- C) Divergent evolution
- D) speciation
- 25. "The presence and success of organism depends on the qualitative and quantitative completeness of a complex of conditions and their absence or abundance is controlled by the qualitative or quantitative deficiency or excessiveness of one or more of such conditions" is termed as:
  - A) Shelford's law of tolerance
  - B) Blackmans law of limiting factors
  - C) Liebig's law of minimum
  - D) Abiotic chemical factors

### 26. Match the following:

27.

1.10004			
a.	Nitrogen fixers	1.	Psudomonas
b.	Mineralisation	2.	Ammonifying bacteria
c.	Nitrifying bacteria	3.	Nostoc
d.	Denitrification	4.	Ntitrosomonas
A)	a-3, b-2, c-1, d-4	B)	a-2, b-3, c-4, d-1
C)	a-3, b-2, c-4, d-1	D)	a-1, b-2, c-4, d-3
Mate	ch the following:		
a.	Mutualism	1.	- 0
b.	Commensalism	2.	+ —
c.	Predation	3.	+ 0
d.	Amensalism	4.	+ +
A)	a-1, b-3, c-2, d-4	B)	a-4, b-3, c-2, d-1
C)	a-3, b-4, c-2, d-1	D)	a-4, b-3, c-1, d-2

- 28. The process which takes place in a resting membrane:
  - A) Transmembranecation pump will not get operated
  - B) Na+ ions are actively transported outward and K+ ion inward across the membrane
  - C) The ionic mobility and membrane permeability of K+ ions are lesser than that of Na+ ions
  - D) The positive ions become more numerous inside the membrane
- 29. Which of the following is **not** a character of Gram Positive Bacteria?
  - A) The peptidoglycan layer is thicker than gram negative bacteria
  - B) The outer layer contains teichoic acid
  - C) The outer layer has an inner thin peptidoglycan, a middle lipoptorin and an outer peptidoglycan layer
  - D) All the above

- 30. Two highly inbred strains of guinea pigs with black fur and the other with greyfur, were crossed. The resulting offspring had black fur. Predict the outcome of intercrossing the offspring:
  - A) All with grey fur
  - B) Black, Grey and White in 1:2:1 ratio
  - C) 3 Black and 1 Grey
  - D) All will be with black fur

### 31. One gene One enzyme hypothesis was put forward by:

- A) George Beedle and Edward Tatum
- B) Temin and Baltimore
- C) Boveri and Sutton
- D) Thomas Hunt Morgan
- 32. Multicellular, diploid and heterotrophic eukaryotes which pass through a blastula stage in their embryonic development constitutes the Kingdom:

A) Proti	ta Bj	) Monera	C)	Animalia	D)	Fungi
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### 33. Rhabditiform larva is the larval stage of:A) Fresh water muscle B) Arenicola

C) Turbenella D) Ascaris

### 34. The specialised excretory cells of cephalochordates is:

- A) Renette cells B) Solenocytes
- C) Nephridia D) Ctinidia

### 35. Apposition vision is the mode of vision by:

- A)OcelliB)Simple eyesB)CCC
- C) Compound eyes D) human eye

### 36. Amoeba proteus is comes under the Phylum:

A)	Opalinata	B)	Actinopoda
C)	Foraminifera	D)	Rhizopoda

37. Assertion (A): ETS transfer electrons through cytochromes and finally to molecular oxygen

### Reason ( R ): The pumping of protons generate an current to generate ATP

- A) Both A and R are true and R is correct explanation of A
- B) Both A and R are true but R is not correct explanation of A
- C) A is true but R is false
- D) A is false but R is true

## 38. Maximum number of individuals of a species, that a particular environment can support indefinitely with its available resources is called:

- A) Population B) Density
- C) Carrying capacity D) Deme

•			•		2				
39.	The a A)	ntigenic detern Paratop	ninants B)	on the s Epitor		C)	ens that an ant Antigen	tibody ca D)	n identify Hepens
40.	The f	irst immunoglo	bulin m	nolecule	produc	ed follo	wing immuni	sation:	
	A)	IgA	B)	IgD		C)	IgM	D)	IgG
41.	Ident	ify the vitamin	precurs	or of Co	enzym	e A:			
	A) C)	Pyridoxine Pantothenic a	acid		B) D)	Niaci Bioti			
	,				,				
42.	-	ntose phosphate osphate is done	-	•		ion of I	Ribulose 5- ph	osphate i	nto Xylulose
	A)	Isomerase			B)	Epim			
	C)	Transketolase	e		D)	Trans	saldolase		
43.	The d	lisease called m		tic anem				2	
	A)	Pantothenic a	ncid		B)	Niaci			
	C)	Pyridoxine			D)	Folic	acid		
44.		ertiary structure	-	rotein is		•			
	A)	Peptide bond			B)		phide bond		
	C)	Hydrogen bo	na		D)	All tr	ne baove		
45.	Whic	h of the followi							
	A)					ond of a	a polypeptide	chain is i	ndicated by
	B)	the dihedral a Ramachandra	•		-	ible cor	of ormations of	f and v a	angles of a
		polypeptide	-		-			j i j i	0
	C)	The value of				1			
	D)	sequence and		-		ole into	rmation on the	e structur	e, amino acid
46.	The a	mino acid pres	ent in tł	ne cataly	tic cent	ter of g	lutathione per	oxidase a	und formate
		drogenase:				-	-		
	A)	Lysine			B)		rtic acid		
	C)	Arginine			D)	Selen	ocysteine		
47		itance pattern o							
	A)	Autosomal re			B)		somal domina		
	C)	Sex linked re	cessive		D)	Sex I	inked domina	11	
48.		eri occurs by th	ne defic	iency of					
	A)	Riboflavin			B)	Thiar			
	C)	Niacin			D)	Folic	aciu		
49.		h of the followi	ing is no	ot a redu	-	-			
	A) C)	Glucose			B)	Sucro			
	C)	Trehalose			D)	Doin	B and C		

50.		ell adhesion mo Collagen l		e: egrins	C)	Laminin	D)	Cadherins
51.	-	cin granules pro imals are:	esent in ne	urons, live	er cells,	heart cells and	muscle	cells of
	· · · · · · · · · · · · · · · · · · ·	telolysosomes protolysosomes	5	B) D)		/sosomes olysosomes		
52.	Compou	unds that are an	tigenic, bu	ıt <b>not</b> imm	-			
	/	Haptens		B)	Antig			
	C) .	Adjuvants		D)	Immu	inogens		
53.		, which is used				-		
	A) (	Gray 1	B) Cu	rie	C)	Coulomb	D)	Becquerel
54.	Antibod	ly independent	compleme	nt activatio	on path	way is:		
	,	Classical		B)	Alteri			
	C) '	Terminal pathw	/ay	D)	None	of these		
55.	A binon	nial name in wh	nich name	of the genu	us and	of the species a	re ident	ical:
	/	Homonym		B)	Tauto	5		
	C) :	Synonym		D)	None	of these		
56.	Presenc	e of 'mutable c	onnective	tissue' or '	catch t	issue' is a salier	nt featu	re of:
	/	Phylum Nemato		B)	-	m Arthropoda		
	C) ]	Phylum Mollus	ca	D)	Phylu	m Echinoderm	ata	
57.	An exar	mple for tumor	suppressor	r gene:				
	A) ]	EGFR	B) SR	С	C)	BRCA2	D)	MYC
58.	Larva o	f hemichordate	is:					
	A) '	Tornaria l	B) Tro	chophore	C)	Veliger	D)	Tadpole
59.	Statin a	a bioactive com	nound is a	vtracted fr	om.			
57.		Monascuspurpi	-	B)		illiumnotatum		
	/	Streptococcus v		D)	Cand	ida albicans		
60.	Amino	acid, which acts	s as the pro	oursor of	nornhy	ring in home		
00.			-	cine	C)	Tryptophan	D)	Tyrosine
<i>с</i> <b>л</b>	, ,				,		,	2
61.		rned rhinoceros Desert national						
	· · · · · · · · · · · · · · · · · · ·	Kaziranga natio						
	· ·	Sunderbans nat			-			
	D) ]	Kanha national	park, Mac	Ihya Prade	sh			
62.	South A	American lung	fish:					
	·	Protopterus		B)		osiren		
	C) ]	Neoceratodus		D)	None	of the above		

63.	Drugs that prevent the formation of the baA)QuinolonesB)C)TetracyclinesD)	cterial cell wall are: Beta-lactams Aminoglycosides		
64.	Brucellosis is a disease. A) Bacterial B) Fungal	C) Viral	D)	Protozoan
65.	Pick out the WBC, which involves in allersA)MonocyteB)Eosinophil	gic reactions: C) Basophil	D)	Neutrophil
66.	Give an example for a cartilaginous fish:A)SardinapilchardusB)C)ClupeaharengusD)	Thunnusalbacares Glyphisgangeticus		
67.	Batrachology deals with: A) Amphibians B) Snakes	C) Ants	D)	Termites
68.	Trisomy 21:A)Patau syndromeB)C)Edward syndromeD)	Down syndrome Turner syndrome		
69.	Connecting link between Annelida and Ar A) Nautilus B) Julus	thropoda: C) Limulus	D)	Peripatus
70.	<ul> <li>Identify the microscopy used to observe li</li> <li>A) Phase contrast microscopy</li> <li>B) Bright field microscopy</li> <li>C) Fluorescence microscopy</li> <li>D) Laser scanning confocal microscopy</li> </ul>	-		
71.	Bucerosbicornis is the scientific name of:A)PeacockB)C)C)EagleD)	Great hornbill Parrot		
72.	The Pre Darwinian evolutionary hypothesisA)Chevalier De LamarckB)C)AristotleD)	s was proposed by: Charles Darwin Carolus Linnaeus		
73.	Meroblastic superficial cleavage is shown A) Birds B) Reptiles	by: C) Insects	D)	All of these
74.	Genome of SARS-CoV-2:A)double stranded RNAB)C)single stranded DNAD)	single stranded RNA double stranded DNA		
75.	Environment protection act was enacted in A) 1986 B) 1997	и: С) 1968	D)	1897

76.	"Matsyasetu" app is developed by: A) CIFA B) CIFT	C) CMFRI	D)	CIFRI	
77.	Assertion (A): A codon is a sequence of three nucleotides present on mRNA, which encodes for a specific protein during the time of translation Reason (R): Codon UUU encodes for phenylalanine				
	<ul> <li>A) Both A and R are true and R is corr</li> <li>B) Both A and R are true but R is not</li> <li>C) Both A and R are false</li> <li>D) A is false but R is true</li> </ul>	1	4		
78.	Progesterone is secreted by:A)Corpus albicansB)C)Rete testisD)	Corpus luteum Ovarian follicles			
79.	Chemicals made by body to relieve stress (A) Endorphins B) Corticoids	and pain that mimic opi C) Cortisol	ioids: D)	Adrenalin	
80.	Schlemm's canal is present in: A) Eye B) Lymph	C) Heart	D)	Cochlea	
81.	Lophodont teeth are found in:A)ElephasmaximusB)C)EquuscaballusD)	Oryctolaguscuniculu All the above	S		
82.	Enzyme that catalyses non- reversible readA)PhosphofructokinaseB)C)PhosphohexoseisomerasesD)	tion in glycolysis: Enolase Triose phosphate iso	merase	S	
83.	Cofactor, which is needed to convert succi A) B1 B) B2	nate to fumarate: C) B9	D)	B6	
84.	Enzyme involved in conversion of hydrogA)DioxygenaseB)C)CatalaseD)	en peroxide to water: Dismutase Hydratase			
85.	Bowfin fish is:A)AmiacalvaB)C)ProtopterusannectensD)	Acipensersturio Hippocampus kuda			
86.	An international environment protocol to p A) Kyoto B) Cartagena	orevent the emission of C) Montreal	greenho D)	ouse gases: Nagoya	
87.	Effect of a single gene on more than one c A) Pleiotropy B) Interference		D)	Epistasis	
88.	Deutan type colour blindness is the insens A) Green B) Red	tivity tolight. C) Blue	D)	Yellow	

- 89. Protein involved in linking together sister chromatids immediately after replication:
  - Cohesin B) Condensin
  - C) Actomyosin D) Both A and B
- 90. Fluctuation test is used to determine:
  - A) Randomness of mutation in bacteria
  - B) To test chemicals for their cancer causing properties
  - C) To study evolution
  - D) None of these

A)

- 91. Vectors that are hybrids of lambda phages and plasmids:
  - A) Cosmids B) Phagemids
  - C) Shuttle vectors D) Clone
- 92. The endosymbiont bacterium, which provides killer trait to Paramecium aureliais :
  - A) Blastocrithidiaculicis B) Crithidiaoncopelti
  - C) Caedibactertaeniospiralis D) Herpetomonasroitmani
- 93. DNA profiling is based on:
  - A)STSB)Restriction site
  - C) SNP D) VNTR
- 94. A collection of dorsal vegetal cells in blastula, which produce mesoderm inducing and dorsalizing signals:
  - A) Spemann-Mangold organizer
  - B) Nieuwkoopcenter
  - C) BCNE centre
  - D) Isthmus organizer
- 95. Thrombopoietin is secreted by:
  - A) Liver B) Muscle
  - C) Kidney D) Bone marrow
- 96. Regeneration in which new cell division is less; and growth and regeneration of structure occurs mainly by the repatterning of existing tissue and the re-establishment of boundaries:
  - A) MorphallaxisB) By EpimorphosisC) Both A and BD) Neither A nor B

## 97. Extremely high risk of extinction in the wild in the immediate future according to IUCN red data book:

- A) Extinct in the wild B) Critically endangered
- C) Vulnerable D) Near threatened
- 98. Speciation which does not require geographic isolation, instead which relies on the development of reproductive isolation mechanism to allow divergence of the two sub populations:
  - A) Allopatric speciation B) Sympatric speciation
  - C) Parapatric speciation D) None of these

99.	Evolutionary event when a populatio size over a short period of time:	n drast	tically r	educes to a sig	nificant	ly smaller
	A) Founder effect	B)	Mutat	ion		
	C) Genetic drift	D)		enecks		
		2)	2000			
100.	Decline in responding to a repeated s	timuli:				
	A) Habituation	B)		t learning		
	C) Imprinting	D)	Condi	itioned reflex		
101	Destaria having flagelle on both side	~.				
101.	Bacteria having flagella on both side		Doritr	ichous		
	A) Amphitrichous	B)				
	C) Atrichous	D)	Lopno	otrichouus		
102.	Reverse transcription was invented b	V:				
	A) George Wells Beadle	B)	Jacob	and Monad		
	C) Francis Crick	D)		n and Baltimor	e	
	-,	_ )			-	
103.	Recognition sequence of BamH1:					
	A) 5'-AGGTCC-3'	B)	5'-TT	ATGG-3'		
	C) 5'-CGATCG-3'	D)	5'-GG	ATCC-3'		
104						
104.	Raft culture is followed for:	D)	G 11			
	A) Penaeusindicus	B)		serrata		
	C) Labeorohita	D)	Perna	viridis		
105.	Protecting species indirectly pr	rotects	the ma	ny other specie	e that m	ake un the
105.	ecological community of its habitat.	010015		ity other specie	s that h	lake up the
	A) Keystone B) Umbre	lla	C)	Flagship	D)	Indicator
		iiu	0)	riugsnip	2)	malcutor
106.	A nucleotide sequence database is:					
	A) EMBL	B)	SWIS	S PROT		
	C) TREMBLE	D)	PROS	SITE		
	,	,				
107.	A Motif identification tool is:					
	A) BLAST B) COPIA	1	C)	FASTA	D)	PROSPECT
100	A 11 1 11 (1	, .			C 1	, ,
108.	A reversible process by which most l		-	• •	eferred of	carbon and
	energy source in comparison with a p A) Anabolic repression				_	
	/ 1	B)		olite repression	1	
	C) Catabolic pathway	D)	Anabo	olic pathway		
109.	Lungs and liver in mammals are deri	ved fro	om <sup>.</sup>			
107.	A) Endoderm	B)	Ectod	erm		
	C) Mesoderm	D)		of these		
		2)	1,0110	51 (11050		
110.	Clotting of menstrual blood inside ut	erus is	preven	ted by:		
	A) Heparin B) Plasmi		C)	Warfarin	D)	Citrate salt
	· · · · · · · ·		/		1	

111.	International day for biological diversity A) May 22 B) June 5	C) April 22 D) December 1
112.	Who among the following is consideredA)Niko TinbergenB)C)Ivan PavlovD)	as father of Ethology? Konard Lorenz Karl Von Frisch
113.	Nanda Devi and Valley of Flowers NationA)BiharB)B)C)UttarakhandD)	onal Park is located in: Kerala Uttar Pradesh
114.	Number of Ramsar site in Kerala: A) 1 B) 2	C) 3 D) 4
115.	An example for computer aided drug des package: A) OpenEye B) Off-spotter	signing and molecular modelling software (c C) ImageJ D) Melanie
116.	Which of the following is the vestigial oA)CoccyxB)C)Nictitating membraneD)	rgan? Wisdom tooth All the above
117.	If sum of 20 values is 500, then its mean A) 15 B) 25	will be: C) 35 D) 10
118.	Equity of population mean is calculatedA)t- testB)C)ANOVAD)	by: Chi square test None of these
119.	Which of the following is the most selectA)Trawl netB)C)Hooks and linesD)	tive gear? Gill net Cast net
120.	Silk gland of silk moth is the modificationA)Labial glandB)C)AntennulesD)	on of: Antennary gland Hypophysis