

6.	The unit for spe			
		cific substrate consumpt	ion rate in a growing cultu	ire is
	(A) $\frac{g}{L-h}$	(B) $\frac{g}{h}$	(C) $\frac{g}{g-h}$	(D) $\frac{\text{gmoles}}{L-h}$
Ansv	wer: (*)			
7.	If the dissociatic chromatography	on constant for solute-a	adsorbent binding is K _D ,	the retention time of the solute in a
	(A) increases w	vith increasing K _D		
	(B) decreases w	vith increasing K _D		
	(C) passes thro	ugh minimum with incre	easing K _D	
	(D) is independ	ent of K _D		
	KD= CS/C	M		
	where :CS	= the concentration of so	olute in th <mark>e stationary phas</mark>	e e
	$\mathbf{C}\mathbf{M} = \mathbf{the}\ \mathbf{c}$	oncentration in the mobi	ile phase.	
Ansv	wer: (B)			
8.	In a batch cultur	e of Penicillium chrysog	enum, the maximum peni	cillin synthesis occurs during the
	(A) lag phase		(B) exponeneti	ial phase
	(C) stationary p	ohase	(D) death phase	e
Ansv	wer: (C)			
9.	The most plaus culture is that	ible explanation for a s	udden increase of the res	piratory quotient (RQ) of a microbial
	(A) cells are dy	ing		
	(B) yield of bio	mass is increasing		
	(C) the ferment	ation rate is increasing r	elative to respiration rate	
	(D) the mainter	ance rate is decreasing		
Ansv	wer: (C)			

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10.	Which of the following is emplo	oyed for the repeated use of enzyme	s in bioprocesses?
	(A) polymerization	(B) immobilizat	ion
	(C) ligation	(D) isomerizatio	on
Insv	ver: (B)		
l 1.	Since mammalian cells are ser	nsitive to shear, scale-up of a mar	nmalian cell process must conside
	among other parameters, the fol	lowing (given $N = rotations/time, D$	=diameter of impelier)
	(A) πND (B) π	$(\mathbf{C}) \pi \mathbf{N} \mathbf{D}^2$	(D) isomerization
Insv	ver: (a)		
12	The degree of reduction of etha	nolis	
2.	vor: (6)		
1115 V			
13.	Gram-positive bacteria are gene	rally resistant to complement-media	ated lysis because
	(A) thick peptidoglycan laye membrane	r prevents insertion of membrar	ne attack complex into the inn
	(B) Gram-positive bacteria imp	port the membrane attack complex a	nd inactivate it
	(C) membrane attack comple bacteria	ex is degraded by the protease	s produced by the Gram-positiv
	(D) Gram-positive bacteria can	not activate the complement pathwa	ay and a second s
Ansv	ver: (A)		
l 4 .	A bacterium belonging to cocc	i group has a diameter of 2µm. Th	he numerical value of the ratio of i
4.	A bacterium belonging to cocc surface area to volume (in μm^{-1}	i group has a diameter of 2μm. Th) is	he numerical value of the ratio of i
4.	A bacterium belonging to cocc surface area to volume (in μm^{-1} ver: (3)	i group has a diameter of 2μm. Th) is	he numerical value of the ratio of i

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15.	Which of the followin bioremediation of oil sp	ng essential element(s) is/are required as majo pills by the resident bacteria?	r supplement to enhance th
	(A) Sulfur	(B) Nitrogen and phos	phorus
	(C) Iron	(D) Carbon	
Answ	ver: (B)		
16.	The 4-amino or 4-keto	group of pyrimidine bases is located in the	
	(A) major groove of th	e double stranded DNA	
	(B) minor groove of th	e double stranded DNA	
	(C) minor groove of th	e B form DNA but not the A form DNA	
	(D) major groove of th	e B form DNA but not the A form DNA	
Answ	v <mark>er: (A)</mark>		
17.	The product(s) resulting	g from the hydrolysis of maltose is/are	
	(A) a mixture of $\alpha - D$	-Glucose and β – D -Glucose	
	(B) a mixture of D-Glu	cose and L-Glucose	
	(C) $\alpha - D$ -Glucose on	ly	
	(D) β -D-Glucose onl	ly	
Answ	ver: (A)		
			2
18.	Amino acid residue whi	ich is most likely to be found in the interior of wate	er-soluble globular proteins is
	(A) Threonine	(B) Aspartic acid	
	(C) Valine	(D) Histidine	
Answ	ver: (C)		
	u. (c)		

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9.	The 5' ends of the mature forms o	of the prokaryotic mRNAs and tRNAs are						
	(A) a triphosphate group in mRN	As and a monophosphate group in tRNAs	8					
	(B) triphosphate groups in both n	nRNAs and tRNAs						
	(C) monophosphate groups in both mRNAs and tRNAs							
	(D) a monophosphate group in m	RNAs and a triphosphate group in tRNAs	5					
nswo	er: (A)							
			1					
20	Prior avposure of plants to patho	gane is known to increase resistance to	future pathogen attacks. This					
10.	phenomenon is known as	gens is known to increase resistance to	Tuture pathogen attacks. This					
	(A) systemic acquired resistance	(B) hypersensitive resp	onse					
	(C) innate immunity	(D) antibody mediated t	response					
nsw	er: (A)	(_ ,,,,,						
Answe	 (A) immunoprecipitation assay (C) immunoaggregation assay er: (B) 	(B) immunodiffusion as (D) immunofixation ass	ssay ay					
	The algorithm for BLAST is based	d on						
	(A) Dynamic Programming	(B) Hidden Markov Mc	odel					
	(A) Dynamic Hogramming	(D) Indden Markov Mo						
	(C) k tuple analysis	(D) Neural Network						
nswa	(C) k-tuple analysis	(D) Neural Network						
Answe	(C) k-tuple analysis er: (C)	(D) Neural Network						
Answe	(C) k-tuple analysis er: (C)	(D) Neural Network						
Answo 23.	 (C) k-tuple analysis er: (C) The statistical frequency of the oc long can be estimated to be 	(D) Neural Network	ne cleavage site that is 6 base					
Answo 23.	 (C) k-tuple analysis er: (C) The statistical frequency of the oclong can be estimated to be (A) once every 24 bases 	(D) Neural Network currence of a particular restriction enzym (B) once every 256 base	ne cleavage site that is 6 base					
Answe	 (C) k-tuple analysis er: (C) The statistical frequency of the oclong can be estimated to be (A) once every 24 bases (C) once every 1024 bases 	(D) Neural Network currence of a particular restriction enzym (B) once every 256 base (D) once every 4096 base	he cleavage site that is 6 base es ses					

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24.	The reactions leading to the form	ation of amino acids from the TCA o	cycle intermediates are
	(A) carboxylation	(B) isomerization	
	(C) transamination	(D) decarboxylation	on
Answ	ver: (C)		
25 <mark>.</mark>	The growth medium for mamma	lian cells contains serum. One of	the major functions of serum is to
	stimulate cell growth and attachm	ent. However, it must be filter steril	ized to
	(A) remove large proteins	(B) remove collag	gen only
	(C) remove mycoplasma and mi	croorganisms (D) remove foami	ng agents
Answ	ver: (C)		
	<u>Q.No</u>	-26 to 55 Carry Two Marks Each	
26	The composite tion multile of a sh	antical at a location wand time to d	noted by s(v, t) shows as not th
20.	following equation.	emical at a location x and time t, de	enoted by $C(x,t)$, changes as per the
	$\int \mathbf{v}^2 d\mathbf{v}$		
	$c(x,t) = \frac{c_0}{\sqrt{2\pi Dt}} \exp\left -\frac{x}{2Dt}\right $		
	Where D and C ₀ are assumed to h	e constant. Which of the following i	s correct?
	$\partial c = \partial^2 c$	$\partial c = D \partial^2 c$	
	$(A)\frac{\partial c}{\partial t} = D\frac{\partial c}{\partial x^2}$	(B) $\frac{\partial c}{\partial t} = \frac{B}{2} \frac{\partial c}{\partial x^2}$	
	$(a) \partial^2 c = \partial^2 c$	$\langle \mathbf{r} \rangle \partial^2 \mathbf{c} \mathbf{D} \partial^2 \mathbf{c}$	
	$(C)\frac{\partial t^2}{\partial t^2} = D\frac{\partial t^2}{\partial x^2}$	(D) $\frac{\partial t}{\partial t^2} = \frac{\partial t}{2} \frac{\partial t}{\partial x^2}$	
Answ	ver: (D)		
27	If $y = x^x$ then $\frac{dy}{dx}$ is		
-/.	dx		
	$(\mathbf{A}) \mathbf{x}^{\mathbf{x}} (\mathbf{x} - 1)$	$(\mathbf{B}) \mathbf{x}^{x-1}$	
	$(C) x^{x} (1 + \log x)$	(D) $e^{x}(1+\log x)$	
Ancu	ver: (C)	() ()	
CT112 M			

6



30. AT-flask is seeded with 10^5 anchorage-dependent cells. The available area of the T-flask is 25cm^2 and the volume of the medium is 25ml. Assume that the cells are rectangles of size $5\mu\text{m}\times2\mu\text{m}$. If the cells grow to monolayer confluence after 50 h, the growth rate in number of cells (cm².h) is _____ x10⁵.

Answer: (2)

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31. Consider a continuous culture provided with a sterile feed containing 10 mM glucose. The steady state cell density and substrate concentration at three different dilution rates are given in the table below.

Dilution rate (h ⁻¹)	Cell density(gL ⁻¹)	Substrate concentration (mM)
0.05	0.248	0.067
0.5	0.208	1.667
5	0	10

The maximum specific growth rate $\mu_m(\ln h^{-1})$, will be _____.

Answer: (0.80)

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- **32.** Cholera toxin increases cAMP levels by
 - (A) modifying G_i protein
 - (C) binding to adenylate cyclase
- (B) modifying G_s protein

(D) activating cAMP phosphodiesterase

Answer: (B)

33. Triose phosphate isomerase converts dihydroxy acetone phosphate (DHAP) to glyceraldehyde-3-phosphate (G-3-P) in a reversible reaction. At 298 K and pH 7.0, the equilibrium mixture contains 40 mM DHAP and 4 mM G-3-P. Assume that the reaction started with 44 mM DHAP and no G-3-P. The standard free-energy change in kJ/mol for the formation of G-3-P [R = 8.315 J/mol.K] is _____.

Answer: (5.70)

34. The plasmid DNA was subjected to restriction digestion using the enzyme *EcoR*I and analysed on an agarose gel. Assuming digestion has worked (the enzyme was active), match the identity of the DNA bands shown in the image in Group I with their identity in Group II.

Group I	Group II		Uncut EcoRl
P. Bands labeled as A	1. Nicked	A —	=
Q. Band labeled as B	2. Supercoiled	в —	_
R. Band labeled as C	3. Concatemers		
S. Band labeled as D	4. Linear	с —	

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	(A) P-3, Q-1, R-2, S-4	(B) P-1, Q-4, R-3,	S-2
	(C) P-4, Q-3, R-1, S-2	(D) P-4, Q-1, R-2,	S-3
Ansv	ver: (A)		
35.	In a relatively large but finite	and closed population of sexually re	eproducing diploid organisms, the
	0.41 in a span of 10 generations	Which of the following is the most li	kely cause for the above change in
	frequency of the PP genotype?	a which of the following is the most h	
	(A) Non-random mating		
	(B) Random genetic drift		
	(C) Selection		
	(D) Combination of non-random	m mating and random genetic drift	
Ansv	ver: (C)		
36.	Topological winding number o	f a 2.0 kb covalently closed circular	DNA was found to be 191 with a
	writhing number of -4. Hence, i	ts LINKING NUMBER and the NUM	BER OF BASE PAIR PER TURN
	(A) 187 10.60 (D) 10	$\frac{1}{100} = \frac{1000}{1000} = \frac{1000}{1000}$	_, respectively.
	(A) 187, 10.09 (B) 1	95, 10.25 (C) 200, 10.00	(D) 187, 10.30
Ansv	ver: (A)		
37	Consider a population of 10.0	00 individuals of which 2500 are	homozygotes (DD) and 2000 are

Answer: (0.6)

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38. Match the following photorecep with their prosthetic groups and spectral specificity

Photoreceptor		Moiety that absorbs light	Absorption (nm)	
	P. Phototropin	1. Chromobilin	a. 400-500	
	Q. Cryptochrome	2. FAD	b. 600-800	
	R. Phytochrome	3. FMN	c. 500-600	
	(A) P-3-a, Q-2-a, R-1-b	(B) I	P-1-b, Q-1-a, R-3-b	
	(C) P-3-a, Q-1-a, R-1-c	(D) I	P-2-c, Q-1-c, R-1-a	

Answer: (A)

39. Match the following plant sources with their secondary metabolites and medical uses

P.	Belladona	1.	Menthol	a.	Cancer treatment	
Q.	Foxglove	2.	Atropine	b.	Heart disease	
R.	Pacific yew	3.	Digitalin	c.	Eye examination	
S.	Eucalyptus	4.	Taxol	d.	Cough	
(A)	P-2-c, Q-3-b, R-4	1-a, 1	S-1-d		(B) P-3-c, Q-2-a, R-1-d, S-4-b	
(C)	P-2-c, Q-4-b, R-2	1-a, 1	S-3-d		(D) P-1-b, Q-4-c, R-2-d, S-3-a	
	())					

Answer: (A)

40. The pungency of mustard seeds is primarily due to secondary metabolites such as isothiocyanate and nitrile. The pungency is usually felt only when the seeds are crushed. This is because of

- (A) the coat of the intact seeds blocks the pungent volatiles from being released
- (B) the pungent chemicals are stored as inactive conjugates and compartmentalized from the enzymes that convert them into active chemicals
- (C) the pungent chemicals are formed only after the reaction with atmospheric oxygen
- (D) the pungent chemicals are formed only after the reaction with atmospheric carbondioxide

Answer: (B)

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11.	In a mouse genome, the nur respectively. The total numb	mbers of functional V α , J α , D β , J β gene ber of possible combination for $\alpha\beta$ T cel	e segments are 79, 38, 21, 2 and 1 1 receptors are $__ \times 10^6$.
Ansv	ver: (1.38)		
42.	The percentage SIMILARI given below will be	ITIES and IDENTITIES, respectively, b	between the two peptide sequence
	Peptide I: Ala-Ala-Arg-Arg-	g-Gln-Trp-Leu-Thr-Phe-Thr-Lys-Ile-Met-	Ser-Glu
	Peptide II: Al	la-Ala-Arg-Glu-Gln-Tyr-Ile-Ser-Phe-Thr-	-Lys-Ile-Met-Arg-Asp
	(A) 80, 80 (B)	B) 80, 60 (C) 60, 60	(D) 90, 60
Ansv	ver: (B)		
12			
1 3.	In an affine gap penalty mo	odel, if the gap opening penalty is -20, g	gap extension penalty is -4 and ga
+3.	In an affine gap penalty molecular field of the second sec	odel, if the gap opening penalty is -20, § 	gap extension penalty is -4 and g
+3. Ansv	In an affine gap penalty mo length is 8, the gap score is _ ver: (-52)	odel, if the gap opening penalty is -20, §	gap extension penalty is -4 and ga
43. Ansv	In an affine gap penalty mo length is 8, the gap score is _ ver: (-52)	odel, if the gap opening penalty is -20, § 	gap extension penalty is -4 and ga
43. Ansv	In an affine gap penalty mo length is 8, the gap score is ver: (-52)	odel, if the gap opening penalty is -20, §	gap extension penalty is -4 and ga
43. Ansv 44.	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s	odel, if the gap opening penalty is -20, g on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co	palgarno sequence for its recognition
43. Ansv 44.	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rF	odel, if the gap opening penalty is -20, g on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA	gap extension penalty is -4 and ga palgarno sequence for its recognition rrect statement is
43. Ansv 44.	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r	odel, if the gap opening penalty is -20, g on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA rRNA	gap extension penalty is -4 and ga palgarno sequence for its recognition rrect statement is
43. Ansv 44.	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r	odel, if the gap opening penalty is -20, g on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA rRNA rRNA	gap extension penalty is -4 and ga palgarno sequence for its recognition rrect statement is
43. Ansv 44.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S rf (C) ASD is present in 16S rf (D) ASD is formed by the i subunit on the 30S sub-	odel, if the gap opening penalty is -20, g on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA rRNA rRNA interaction of the 16S rRNA with the 23S punit of the ribosomes	palgarno sequence for its recognition rrect statement is
43. 44. Ansv	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S rf (C) ASD is present in 16S rf (D) ASD is formed by the i subunit on the 30S subtriver: (C)	odel, if the gap opening penalty is -20, § 	palgarno sequence for its recognition rrect statement is
+3. 4Ansv 44. 44.	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S sub- ver: (C)	odel, if the gap opening penalty is -20, § 	palgarno sequence for its recognition rrect statement is
43. Ansv 44. Ansv	In an affine gap penalty mo length is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subt ver: (C)	odel, if the gap opening penalty is -20, § 	palgarno sequence for its recognition rrect statement is
43. 44.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subt	odel, if the gap opening penalty is -20, § on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA rRNA rRNA interaction of the 16S rRNA with the 23S punit of the ribosomes	gap extension penalty is -4 and ga balgarno sequence for its recognition rrect statement is
43. 44.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rH (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subu	odel, if the gap opening penalty is -20, § 	gap extension penalty is -4 and ga balgarno sequence for its recognitic rrect statement is
43. Ansv 44.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subu	odel, if the gap opening penalty is -20, § 	gap extension penalty is -4 and gap balgarno sequence for its recognition rrect statement is 5 rRNA upon docking of the 50S
43. 4Ansv 44.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subt	odel, if the gap opening penalty is -20, § 	palgarno sequence for its recognition rrect statement is
43. 4Ansv 14.	In an affine gap penalty molength is 8, the gap score is ver: (-52) For their efficient translation by an anti-Shine-Dalgarno s (A) ASD is present in 5S rf (B) ASD is present in 23S r (C) ASD is present in 16S r (D) ASD is formed by the i subunit on the 30S subtover: (C)	odel, if the gap opening penalty is -20, § on, eubacterial mRNAs possess a Shine-D sequence (ASD) in the ribosomes. The co RNA rRNA rRNA interaction of the 16S rRNA with the 23S punit of the ribosomes	gap extension penalty is -4 and gap balgarno sequence for its recognition rrect statement is 5 rRNA upon docking of the 50S

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45. Match the items in Group I with Group II:

Group I	Group II
(P) Receptor tyrosine kinase	(1) Inactivation of G-proteins
(Q) Cyclic GMP (cGMP)	(2) Reception of insulin signal
(R) GTPase activating protein (GAP)	(3) Thyroid hormone
(S) Nuclear receptor	(4) Receptor guanylyl cyclise
(A) P-1, Q-3, R-4, S-2	(B) P-2, Q-4, R-3, S-1
(C) P-3, Q-1, R-4, S-2	(D) P-2, Q-4, R-1, S-3

Answer: (D)

46. Match the immunoglobulin class in Group I with its properties in Group II:

Group I	Group II			
(P) IgG	(1)	Major antibody in external secretions such as bronchial mucus		
(Q) IgA	(2)	Protects against parasites		
(R) IgE	(3)	Antibody that appears first in serum after exposure to an antigen		
(S) IgM	(4)	Atibody present in highest concentration in serum		
(A) P-4, Q-1, R-2, S-3		(B) P-3, Q- 2, R-1, S-4		
(C) P-4, Q-3, R-1, S-2		(D) P-1, Q- 4, R-3, S-2		
• (A)				

Answer: (A)

47. In a genetic cross between the genotypes WWXX and wwxx, the following phenotypic distributions were observed among the F_2 progeny: WX, 562; wx, 158; Wx, 38; and wX, 42. Likewise, a cross between XXYY and xxyy yielded the following results: XY, 675; xy, 175; Xy, 72; and xY, 78. Similarly, a cross between WWYY and wwyy yielded: WY, 292; wy, 88; Wy, 12; and wY, 8. In all the genotypes, capital letters denote the dominant allele. Assume that the F_1 progeny were self-fertilized in all three crosses. Also, double cross-over does not occur in this species. Which of the following is correct?

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(A) Relative position: W-X-Y	Distances: $W-X = 5$ map units, $X-Y =$	17 map units
(B) Relative position: X-Y-W	Distances: X-Y = 15 map units, Y-W =	= 11 map units
(C) Relative position: Y-W-X	Distances: $Y-W = 5$ map units, $W-X =$	11 map units
(D) Relative position: X-W-Y	Distances: $X-W = 5$ map units, $W-Y =$	10 map units
er: (C)		
The length of the minimum ur base pairs long genome is	nique stretch of DNA sequence that car	be found only once in a 3 billion
(A) 14 (B)	15 (C) 16	(D) 18
er: (C)		
Lysine is being produced in a was observed that the concent assays of reactor samples show operating conditions. The most	lab-scale reactor by a threonine auxotr ration of lysine in the reactor was grac wed absence of contamination and recor t probable reason for decrease in lysine	oph. After 2 weeks of operation it dually decreasing. Microbiological rded data showed no change in the concentration may be attributed to
(A) accumulation of ethanol	(B) growth of reve	rtants
(C) production of citric acid	(D) unutilized pho	sphoenol pyruvate
er: (B)		
If a plant is shifted to cold membrane?	temperature, which of the following	changes would take place in its
(A) Ratio of unsaturated to sat	turated fatty acids would increase	
(B) Ratio of unsaturated to sat	turated fatty acids would decrease	
· · ·		
(C) Absolute amount of both	fatty acids would increase keeping the r	atio same
(C) Absolute amount of both(D) Absolute amount of both	fatty acids would increase keeping the r fatty acids would remain unchanged	atio same
	 (A) Relative position: W-X-Y (B) Relative position: X-Y-W (C) Relative position: Y-W-X (D) Relative position: X-W-Y er: (C) The length of the minimum urbase pairs long genome is (A) 14 (B) Er: (C) Lysine is being produced in a was observed that the concent assays of reactor samples show operating conditions. The most (A) accumulation of ethanol (C) production of citric acid er: (B) If a plant is shifted to cold membrane? (A) Ratio of unsaturated to sa 	 (A) Relative position: W-X-Y Distances: W-X = 5 map units, X-Y = (B) Relative position: X-Y-W Distances: X-Y = 15 map units, Y-W = (C) Relative position: Y-W-X Distances: Y-W = 5 map units, W-X = (D) Relative position: X-W-Y Distances: X-W = 5 map units, W-Y = er: (C) The length of the minimum unique stretch of DNA sequence that car base pairs long genome is (A) 14 (B) 15 (C) 16 er: (C) Lysine is being produced in a lab-scale reactor by a threonine auxotr was observed that the concentration of lysine in the reactor was grad assays of reactor samples showed absence of contamination and record operating conditions. The most probable reason for decrease in lysine (A) accumulation of ethanol (B) growth of reve (C) production of citric acid (D) unutilized photence

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51. If protoplasts are placed in distilled water, they swell and burst as a result of endosmosis. The plot representing the kinetics of burst is



52. Which of the following statements with respect to the orientation of the nitrogenous bases to the pentose sugars, and the puckering of the sugar, is correct?

- (A) Anti, and 2'-endo in A form DNA
- (B) Anti, and 2'-endo in B form DNA
- (C) Syn, and 3'-endo in A form DNA
- (D) Syn, and 3' -endo in B form DNA

Answer: (B)

<u>GATEFORUM</u>

- **53.** A dioecious plant has XX sexual genotype for female and XY for male. After double fertilization, what would be the genotype of the embryos and endosperms?
 - (A) 100% ovules will have XXX endosperm and XX embryo
 - (B) 100% ovules will have XXY endosperm and XY embryo
 - (C) 50% ovules will have XYY endosperm and XY embryo, while other 50% will have XXY endosperm and YY embryo
 - (D) 50% ovules will have XXX endosperm and XX embryo, while the other 50% will have XXY endosperm and XY embryo

Answer: (D)

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