

ST. ANTHONY'S COLLEGE SHILLONG

ENTRANCE TEST FOR ADMISSION INTO UNDER GRADUATE PROFESSIONAL COURSES 2010

BIOTECHNOLOGY

DATE: THURSDAY, 6TH MAY, 2010

TIME: 9:30 AM – 11:00 AM DURATION: 1 HOUR 30 MINUTES

INSTRUCTIONS

- This test has two parts. Part A and Part B.
- Part A has a total of **70** multiple choice questions. Question 1- 70 of Part A is to be answered on the Answer Sheet provided to you and must be returned back at the conclusion of this test.
- Part B has a total of 20 questions. These questions are to be answered on the question paper itself, in the space provided.
- For each question you may select only **ONE** answer. Selecting more than one option qualifies as a wrong answer. You can use a pen/pencil for answering the questions.
- Each correct answer in Part A and B carries a weightage of 1 mark while a wrong answer carries a penalty of 0.25.
- Write the Roll Number given on your Admit Card in the answer sheet and question paper in the space provided.
- Please preserve your Admit Card. It will be required at the time of admission.
- The Admit Card numbers of those shortlisted for admission on the basis of this Entrance Test will be published on the College Notice Boards as well as on the College Web Site on Monday, 10th May, 2010.
- The final admission will be done on a first come, first served basis, after the marksheets of the Class XII examinations of the Meghalaya Board of School Education are available, provided the eligibility criteria as laid down in the prospectus are fulfilled. Shorlisted students from other boards and streams whose Class XII results are declared later will also be considered for admission provided they report not later than 2 days after the result declaration of their respective board examinations along with their marksheets (Original or Downloaded).

ADMIT CARD NO	
Invigilators Signature	

Part A

(1 mark will be awarded for every correct answer, 0.25 will deducted for every wrong answer)

Directions for Questions 1 to 70: Choose the best answer in each of the following by marking it on the answer sheet given to you.

1.	The physical expression a. Genotype	on of a trait is calle b. Phenotype		c. Allotype	d. Isot	ype	
2.	The chromosome that a. w	determines malei b. X		umans is: c. Y	d. Z		
3.	The region of chromati a. nucleosomes c. both euchromatin ar	•	Ū	ranscription i b. heterchro d. euchroma	matin		
4.	Mutation theory was proposed by: a. Charles Robert Darwin c. Baptiste de Lamarck			b. Hugo de Vries d. August Weismann			
5.	Analogous Structures are the result of: a. Divergent Evolution c. Convergent Evolution			b. Adaptive Radiation d. Radical Evolution			
6.	What force will change seconds? a. 10 N	the velocity of a b. 5N	•	nass 1 kg fro c. 2 kg wt	m 20 m/s	to 30 m/s in two	
7.	A passenger in a movi			-	ehind him		
	moving with: a. an acceleration c. a uniform speed	ig train tosses a		b. a deceler	ation	, the train mast be	
8.	Three resistances eac	ch of 4 Ω are co				e resistance betwee	en the
	terminals is: a. 12 Ω	b. 2 Ω		c. 6 Ω		d. 8/3 Ω	
9.	The radius of the earth is 4 times that of the moon and its mass is 80 times that of the mo acceleration due to gravity on the surface of the earth is 10 m/s ² , that on the surface of the it will be:				oon. If moon		
	a. 1 m/s ²	b. 2 m/s ²		c. 3 m/s ²		d. 4 m/s ²	
10.	A kilowatt hour is the u a. power	nit of: b. energy		c. electric ch	arge d	. electric current	
11.	The condition when e	ach additional se	et of chr	omosomes is	s identical	to the parent spec	cies is
	called: a. Autopolyploidy c. both (a) and (b)			b. Allopolypod. neither (a	•		
12.	Organelles involved in a. mitochondria and ch c. lysomes and peroxis	loroplast	b. golgi	ire: bodies and e eus and ribos		nic reticulum	
13.	A chromosome in whic a. Telocentric c. Submetacentric	h the centromere	is locate b. Acroo d. Meta	entric	nd is said t	to be:	
14.	The primary componer a. cellulose	nt of middle lamel b. lignin	la consis		d. kera	ıtin	
15.	Cytoskeleton is the name given to the distribution of: a. microtubules and microfilaments b. microactin c. microactin and microtubules d. microfilaments						
16.	Oxygen consumed in ba. Water	oiological oxidatio b. ATP		ns is excrete c. Carbon di		as: d. Pyruvate	
17.	In humans the main ca a. Ammonia	tabolic product of b. Uric acid		is: c. Urea	d. Hyp	ooxanthine	
18.	What is the molarity of a. 0.83	5% (w/v) Urea? I b. 1.2		ular weight is c. 8.3	60: d. 0.12	2	
19.	The most abundant spanse. Ribosomal RNA (rRl c. Messenger RNA (ml	NA)		ell is: b. Transfer F d. none of th	,	Α)	
20.	The place that an animis termed as:	al occupies in a l	oiotic con	nmunity whic	h expresse	es its functional stati	JS

d. Home

c. Tropic level

b. Niche

a. Habitat

21.	factors continue to operate are called:	to endangered category in the r	lear luture ii the causai		
	a. Vulnerable species	b. Rare species			
	c. Threatened species	d. Endangered specie	S		
22.	Charles Darwin put forth his theory of Ex		on of the finches of:		
	a. Malay peninsulac. Galapagos islands	b. Ireland d. Caribbean islands			
22		n and phiasm of store in plants	:		
23.	Dividing tissue present in between xylen a. secondary cambium	b. apical meristem	15.		
	c. intercalary meristem	d. vascular cambium			
24.	The tap root of plants is direct prolongat	ion of:			
	a. Plumule b. Radicle	c. Stem	d. Cotyledons		
25.	Transpiration in plants is very low during				
	a. Presence of moisture in the windc. High velocity of winds	b. Low temperature dud. High temperature du	~		
	•	,	uring storms		
26.	The differentially permeable membrane a. water only	allows the passage of: b. solvent only			
	c. solute only	d. selected solutes and	d solvents		
27.	Rate of transpiration increases:				
	a. when there is no light	b. in water			
	c. when temperature increases	d. in rainy season			
28.	The metal present in plastocyanin is:	- 7	d Ma		
	a. Cu b. Fe	c. Zn	d. Mo		
29.	The blood vessel which collects blood from before the heart is called:	om an organ and opens in an ir	ntermediate organ		
	a. vein b. artery	c. portal vein	d. portal artery		
30.	The outermost covering of the brain in m	nan is called:			
00.	a. Duramater b. Piamater	c. Arachnoid	d. Choroid		
31.	The focal length of eye lens is controlled	d by:			
	a. Vitreous humour b. Pupil	c. Iris muscles	d. Ciliary muscles		
32.	Metabolic rate in mammals is controlled				
	a. Pancreas b. Liver	c. Pituitary	d. Thyroid		
33.	Reduced secretion of thyroxine in children		d Marca dama		
	a. Acromegaly b. Cretinism	c. Goitre	d. Myxoedema		
34.	Fusion of two gametic nuclei is called: a. Syngamy b. Karyogamy	c. Amphimixis	d. Fertilization		
-		·	a. i oranzadori		
35.	The first phase of embryonic developme a. Cleavage b. Gastrulation	ent in animals is: c. Fertilization	d. Gametogenesis		
36.	One of the following ratios represents a	tast cross:	-		
30.	a. 3 : 1 b. 9 : 7	c. 1 : 2 :1	d. 1 : 1 : 1 : 1		
37.	A gene pair hides the effect of another.	The phenomenon is:			
	a. Epistasis b. Dominance	c. Mutation	d. None of these		
38.	Which of the following crosses is suitable		?		
	a. aaBB x aaBB b. AABB x aabb	c. AaBb x AaBb	d. AAbb x AaBB		
39.	An exchange of segments between the two non-homologous chromosomes is called:				
	a. Inversionc. Translocation	b. Polyploidyd. Chromosomal aberration			
40.	Maize has ten pairs of chromosomes. To a. 20 b. 10	he number of linkage groups ar c. 40	e: d. 5		
41.	The ionization energy of nitrogen is more	e than that of ovugen because	of:		
71.	a. greater attraction of nucleus for electr	ons b. the extra stability of	half filled <i>p</i> -orbitals		
	c. smaller size of the nitrogen atom	d. more penetrating ef	fect		

42.	a. four	b. two	o atoms	c. three	bond can t	d. one	
43.	Which of the following r a. $q = \Delta E - w$	epresents the fir	rst law of b. ΔH =		nics?		
	c. $\Delta E = \Delta H + P \Delta V$		d. ΔH =	•			
44.	The pH of a solution is solution will be:	5.9. If the hydro	gen ion c	concentration	is decrease	ed hundred times, the	е
	a. more acidic		b. neut				
	c. basic		d. of th	e same acidit	у		
45.	When limestone is burn a. Clinker	t in a kiln the res b. Quick lime	sulting p	roduct is: c. Lime mort	ar	d. Plaster of Paris	
46.	Molecular formula of GI a. MgSO ₄ . 7H ₂ O c. FeSO ₄ .7H ₂ O	auber's salt is:		O ₄ .5H ₂ O SO ₄ .10H ₂ O			
47.	Which of the following of a. Hg ²⁺	exist as dimer? b. Cu ²⁺		c. Hg ⁺		d. Fe ²⁺	
48.	The heat content of Y i a. spontaneous c. endothermic	s greater than th	b. exot		$X \to Y$ is:		
49.	The IUPAC name of co a. 3,3,3-trimethyl-1-pro c 3,3-dimethyl-1-buter	pene	b. 1,1,1	(CH ₃) ₃ C-CH= -trimethyl-3-p dimethyl-3-but	ropene		
50.	Which of the following is a. Conformational c. Position	somerisms is no	b. Chai		?		
51.	An example of derived a. Fats	lipid is: b. Waxes		c. Phospholi	pids	d. Cholesterol	
52.	Acetylene reacts with water in the presence of Hg ²⁺ and acidic medium to give: a. ethanol b. ethanal c. ethane d. propanol						
53.	The positron is nearly a a. alpha particles	as heavy as: b. protons		c. electrons		d. deuterons	
54.	In a chemical reaction equilibrium is said to have been established when the: a. concentration of reactants and products are equal b. opposing reactions cease c. rates of opposing reaction become equal						
	d. temperature of oppos		•				
55.	Twelve grams of H ₂ SO ₂ normality, is:	is dissolved in	water to	make 1200 m	Il solution.	Γhe concentration, ir	า
	a. 0.061 N	b. 0.102 N		c. 0.022 N		d. 0.204 N	
56.	Silver is extracted from a. Mond's process	commercial lead b. Parke's prod		c. Haber's p	rocess	d. Clark's process	
57.	Bonds can form between a. they acquire higher e. they change their pos	energy state		b. they get the		lowered	
58.	The chlorination of met a. elimination process c. addition reaction	hane is an exam	ple of:	b. substitution			
59.	The radioactive isotope a. hydrogen	of hydrogen is: b. protium		c. deuterium		d. tritium	
60.	The lowest alkene whice a. 1-Butene	h is capable of e b. 2-Pentene	exhibiting	geometrical c. 2-Butene	isomerism i	is: d. 2,3-Dimethylbuta	ane
61.	Tears contain an antiba a. ribozyme	ncterial enzyme of b. lysozyme	called:	c. ptyalin		d. endonuclease	

62. VAM stands for:

a. vascular aboral medicine

c. vesicular arbuscular mycorrhizae

b. vermi alluring modification d. variance accelerated machine

He established the microbiological basis of disease: 63.

a. Anton von Leeuwenhoek

b. Ernst Haeckel

c. Charles Darwin

d. Robert Koch

The reactions of the TCA cycle occur in: 64.

a. ribosomes

b. grana

c. mitochondria

d. endoplasmic reticulum

65. Fusion of gametes for the formation of a zygote is called:

a. Syngamy

b. Plasmogamy

c. Isogamy

d. Heterogamy

66. The solution for the equation -5x + 3 = -12 is, x =

b. 3

c. 5

The average of 1.05 + 0.0025 + 0.75 + 12.1 + 2.0 is: 67.

b. 3.4705

c. 3.1805

d. 3.205

d. 5

d. - 5

68. The solution for the equation 3.75x + 0.5 = 2.25x = 8 is, x =b. 10 a. 3 c. -5

69.

70.

The vitamin which prevents rupturing of the blood vessel and bleeding is:

d. Vitamin B₂

b. Vitamin C

a. Vitamin E

a. Uraemia

Renal failure generally leads to: b. Haematuria

c. Albuminuria

c. Vitamin K

d. Nephrominuria

Part B

(1 mark will be awarded for every correct answer, 0.25 will be deducted for every wrong answer)

ection for questions 1-20: Fill in the blanks:
is known as cell drinking.
Chromatin fibres are made of repeating units called
The increased accumulation of toxic substances in food pyramids is called
may be made by reacting magnesium with ethyl iodide.
The purest form of iron is
The focal length of a convex lens is 30 cm and the size of the image is a quarter of the objective. The object is at a distance of
is the event that leads to genetic exchange between members of each homologous pair of chromosomes.
When a breeding experiment involves only one pair of contrasting traits it is called across.
Genes that are present in one chromosome are said to be
An obstruction of the bile duct causes
The largest gland of the human body is
Mucosal folds present inside the stomach are called
When a blood clot is formed inside a blood vessel, the condition is called
Sweat serves to eliminate mainly water and
The largest part of the human brain
Orbitals in atoms that have the same energy are called orbitals.
An element having atomic number 34 belongs to the block of the periodic table.
The ionization energy of Na ⁺ is than that of Mg ⁺ .
Metals are good conductors of electricity due to the presence of
An aqueous solution of N₄HCl is in nature.
