23BCP102

UG PROGRAM (4 YEARS HONORS) WITH SINGLE MAJOR

(a) Compressed air (b) Flywheels (c) Hydrogen). Which of the following is common form of chemical energy storage used in batteries?	(a) Coal(b) Solar (c) Wind (d) Hydropower	Which of the following is NOT considered a renewable energy source?	(a) 1 (b) 0 (c) 8 (d) None	If $\begin{bmatrix} x & + \\ 2 & 8 \end{bmatrix}$ is a singular matrix then $x=$	(a) $xSinx - Cosx + c$ (b) $xSinx + Cosx + c$ (c)	JxCosx dx = 100 100 100 100 100 100 100 100	(a) $e^x + 1$ (b) $x + 1$ (c) e^x (d) $e^x(x+1)$	# (xex) = 10 100 100 100 100 100 100 100 100	(a) 1/x (b) 0 (c) 1 (d) c	$\frac{d}{dx}(\log x) = \frac{d}{(\log x)^2}$	(a) 1 (b) 0 (c) -1 (d) None	lim log(1+x) = 100 100 100 100 100 100 100 100 100 1	(a) $\frac{b}{a}$ (b) $\frac{-a}{b}$ (c) 0 (d) None	Slope of a straight line $ax + by + c = 0$ is equal to	(a) (0, 2) (b) (4, -3) (c)(4, -5) (d) (5, -4)	2x-3y-23=0, $2x+y-3=0$ and $3x+2y-2$	rrent straight	(a) $\frac{x}{1} + \frac{y}{1} = -1$ (b) $\frac{x}{-1} + \frac{y}{-1} = 1$ (c) $\frac{x}{-1} + \frac{y}{1}$	Intercept form of straight line $x + y + 1 = 0$ is	Section-A (Multiple Choice Questions)	Time: 3Hours	(w.e.f. Admitted Batch 2023-24)	Things, Chemistry / Analytical Chemistry, Geology, Geography))	Science, Computer Science, Artificial Intelligence and Robotics, Psychology, Internet of	Common for B.Sc. (Mathematics, Statistics, Che	ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES	AT THE END OF FIRST SEMESTER
(d) Molten salt	energy storage used in batteries?	P 18 18 18 18 18 18 18 18 18 18 18 18 18	energy source?	10 100 100 100 100 100 100 100 100 100	(3) (3) (3) (3) (3) (3) (3) (3) (3) (3)	xSinxCosx + c (d) None	100 to	THE REAL PART OF THE PART OF T	100 100 100 100 100 100 100 100 100 100	10 CE	10 130 130 130 130 130 130 130 130 130 1	N ON ON THE PRI ON ON THE PRI ON	THE COST OFF COST (N.) THE COST OFF COS	0 130 130 170 170 170 130 130 130 130 170	A 100 100 100 100 100 100 100 100 100 10	10 10 10 10 10 10 10 10 10 10 10 10 10 1	-2 = 0 is 130 130 () 130 130 130 130	105 136 138 139 131 139 139 139 139 139 139 139 139	$\frac{y}{1} = -1$ (d) $\frac{x}{1} + \frac{y}{1} = -1$	100 100 100 100 100 100 100 100 100 100	Questions) 30x1=30	Maximum: 70 marks	023-24)	Geography))	d Robotics, Psychology, Internet of	Chemistry, Electronics, Physics, Data	AND CHEMICAL SCIENCES	EMESIER

		-
COLUMN TO THE PARTY OF THE PART	definition displays	What type of display
136 120 15 15 15 15 15 15 15 15 15 15 15 15 15		technology
		uses
		quantum
		dots
		5
		produce
		vivid
		colors
		and high

- (a) OLED (b) CRT (c) QLED (d) LCD
- 12. What recent advancement in biophysics has improved our understanding of protein folding and misfolding in diseases like Alzheimer's, Parkinson's? (a) Cryo-electron microscopy (b) Atomic force microscopy
- (c) Nuclear magnetic resonance (NMR)spectroscopy
- (d) X-ray diffraction
- 13. Which technology is commonly used for large -scale energy storage in smart grids? (a) Lithium-ion batteries(b) Flywheel energy storage
- (c) Lead-acid batteries (d) Hydrogen fuel cells
- 14. What is the term used to describe the process of using nanoparticles to enhance imaging techniques for medical diagnostics?
- (a) Nanoscopy(b) Nano therapy (c)Nano diagnostics(d) Nano treatment
- 15. What is the key application of biophysics In neuro science?
- (a) Quantum computing (b) Brain imaging techniques
- (c) Agricultural genetics (d) Weather prediction
- 16. What is the primary imaging modality used in nuclear medicine?
- (d) Single photon Emission computed tomography (SEPCT) (a) X-rays (b) Magnetic Resonance imaging (MRI)(c) Computed tomography(CT)
- 17. What role does virtual screening play in CADD?
- (a) Identifying potential drug candidates
- (b)Synthesizing actual drugs
- (c)Conducting clinical trials
- (d) Marketing pharmaceutical products
- 18. Which of the following is an example of a chemical probe used in chemical biology
- (a) Antibiotic (b) Painkiller (c) Antacid(d) Fluorescent dye
- 19. What is the main goal of chemical genetics in chemical biology?
- (a) Developing new drugs
- (b) Understanding the genetic code
- (c)Manipulating biological systems with small molecules
- (d) Cloning genes

(a) Increased species diversity(b) Improved ecosystem caused by chemical pollutants? () (2) Loss of biodiversity and ecosystem (d) Accelerated ecological succession (2) How does exposure to lead in drinking water primarily affect children? () (a) Improved ecognitive development (b) Enhanced digestion (c)Neurological damage and development delays (d) Increased energy levels (2) Which canalysis method is commonly used for the degradation of organic dyes in waste water treatment? (a) Photocatalysis (b) Electrolytic catalysis (c) Thermal catalysis(d) Enzymatic catalysis (c) Increase the intensity of the dye (b) Speed up the degradation of dye molecules (c) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (c) Coagulation (b) Filtration (c) Chlorination (d) pH adjustment (a) Coagulation (b) Filtration (c) Chlorination (d) pH adjustment (b) Coagulation (b) It11(c) 1001(d) 1000 (a) Voltage (b) Waveforms (c) 0s and 1s (d) Frequencies (c) 3s. Telephone lines? (c) 3s. Telephone lines?
(a) Increased species diversity(b) Improved excession resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession (1) How does exposure to lead in drinking water primarily affect children? (a) Improved cognitive development (b) Enhanced digestion (c) Neurological damage and development delays (d) Increased energy levels (2) Which catalysis method is commonly used for the degradation of organic dyes in waste water treatment? (a) Photocatalysis (b) Electrolytic catalysis (c) Thermal catalysis(d) Enzymatic catalysis (c) Increase the intensity of the dye (b) Speed up the degradation of dye molecules (c) Increase the following is a common disinfection method used in water treatment? (a) Coagulation (b) Filtration (c)Chlorination (d) pH adjustment (b) Hold (c) 17 (c) 20 (b) 15 (c) 21(d) 17 (c) 1001(d) 1000 (c) In which form are digital signal transmitted?
(a) Increased species diversity(b) Improved ecosystem resilience (c)Loss of blodiversity and ecosystem (d) Accelerated ecological succession 21. How does exposure to lead in drinking water primarily affect children? (a)Improved cognitive development (b) Enhanced digestion (c)Neurological damage and development delays (d) Increased energy levels 22. Which catalysis method is commonly used for the degradation of organic dyes in waste water treatment? (a) Photocatalysis (b)Electrolytic catalysis (c)Thermal catalysis(d) Enzymatic catalysis (d) Change the color of the dye (b) Speed up the degradation of dye molecules (c)Increase the intensity of the dye (d) Prevent the interaction with other chemicals (c) Increased the intensity of the dye (d) Prevent the interaction with other chemicals (d) Coagulation (b) Filtration (c)Chlorination (d) pH adjustment (e) Coagulation (b) Filtration (c)Chlorination (d) pH adjustment
(a) Increased species diversity(b) Improved ecosystem resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession (1) How does exposure to lead in drinking water primarily affect children? (a) Improved cognitive development (b) Enhanced digestion (c)Neurological damage and development delays (d) Increased energy levels (d) Increased energy levels (e) Photocatalysis (b)Electrolytic catalysis (c) Thermal catalysis(d) Enzymatic catalysis (e) Thermal catalysis(d) Enzymatic catalysis (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (c) Increase the intensity of the dye (d) Prevent the interaction water treatment? (1) (2) Which of the following is a common disinfection method used in water treatment? (2) Which of the following is a common disinfection method used in water treatment? (3) Change the color of the dye (d) Prevent the interaction with other chemicals (c) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (d) Which of the following is a common disinfection method used in water treatment? (e) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals (f) Increase the intensity of the dye (d) Prevent the interaction with other chemicals
(a) Increased species diversity(b) Improved cossystem resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession (2) How does exposure to lead in drinking water primarily affect children? (a) Improved cognitive development (b) Enhanced digestion (c)Neurological damage and development delays (d) Increased energy levels (2) Which catalysis method is commonly used for the degradation of organic dyes in waster treatment? (a) Photocatalysis (b) Electrolytic catalysis (c) Thermal catalysis(d) Enzymatic catalysis
20. What is the primary consequence of habitat destruction caused by chemical pollutants? () (a) Increased species diversity(b) Improved coosystem resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession 21. How does exposure to lead in drinking water primarily affect children? (a) Improved cognitive development (b) Enhanced digestion (c) Neurological damage and development delays (d) Increased energy levels 22. Which catalysis method is commonly used for the degradation of organic dyes in waste
20. What is the primary consequence of habitat destruction caused by chemical pollutants? () (a) Increased species diversity(b) Improved cossystem resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession 21. How does exposure to lead in drinking water primarily affect children? (a) Improved cognitive development (b) Enhanced digestion
20. What is the primary consequence of babitat destruction caused by chemical pollutants? () (a) Increased species diversity(b) Improved consystem resilience (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession (c)Loss of biodiversity and ecosystem (d) Accelerated ecological succession (c) Loss of biodiversity and ecosystem (d) Accelerated ecological succession (c) Loss of biodiversity and ecosystem (d) Accelerated ecological succession (c) Loss of biodiversity and ecosystem (d) Accelerated ecological succession

5 = 0 and	1. Find the equation of the straight line parallel to the straight line $3x + 4y + 5 = 0$ and	. Find the equation o	-
10x1=10	Section - C(Very short answer questions)		
	0. Binary equivalent of the octal number 67 is	. Binary equivalent	0
		ASCII stands for	.0
	is a key component of DNA structure		90
	7. Quantum dots are mainly used in the field	. Quantum dots are	
	o power is	Advantage of hydro power is	3
		5. Quantum dots are_	S
		4. D(Tanx) =	-
		3. \[\int Tanxdx =	
		2. D (a ^x) =	, -
	= P is called form of a straight line	1. $x \cos \alpha + y \sin \alpha = P \text{ is called}$	-
10x1=10	Section - B(Fill in the Blanks)		

passes through (4, -5)
42. Find lim x⁴-3⁴/x-3
43. Find D(xTan⁻¹x)
44. How has artificial intelligence been integrated with medical physics?
45. Which process involves the removal of dissolved impurities by forcing water through a semi – permeable membrane?
46. What is the primary environmental concern associated with open dumping of solid was

46. What is the primary environmental concern associated with open dumping of solid waste?

47. What is the full form of CADD?

48. What is the function of RNA in the cell?

49. What is modem?

50. What is the full form of Wi-Fi?

Section - D(Matching)

2x5=10

	55.	54.	53.	51. 52.	
	Sin 45	Cos 60	Sin 60.	Sin 0	
_	_	_	^	~ ~	
_	_	_	$\overline{}$	\cup	
	is	a	?	à b	
al-	0	12	_	p. 132	
					,

II	- 42 Oct 18			
	Coagulation	()	a. Chlorination	
	57. Disinfection	()	b. Settling of susp	ended particles
	58. Sedimentation	()	c. Reverse osmosi	s
	59. Desalination	()	d. Removing odor	& taste
	60. Carbon adsorptio	n ()	e. Removal of sus	pended particles
100 000 000	A STATE OF THE STA	()	f. Forcing water	
35. 128	A STATE OF THE STA	Section - E (True	Or False)	10x1=10
, o v, 12.1	61. Wind turbines can gener	rate electricity at any	y time	()
	62. Pesticide use in agricult	ure causes acid rain	70 - 10 - 12 - 12	()
13 13 13	63. Wood is an example of	biomass energy	Jan 14 14	()
	64. The process of splitting	atoms to release ene	ergy is known as cher	mical energy ()
30 1 1 1 2 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1	65. Wind energy converts su	unlight into electricit	ty	()
	66. Optical fiber is used for	long distance comm	unication	()
10 10 10 10	67. Decimal equivalent of (1	1110) ₂ is 15	100	()
	68. Hexadecimal equivalent	of 1238 is 4D7		()
4 4 de 1961 1962	69. Cable modem works wit	h the help of Teleph	one line	(1)
13 1 12 13 1 ID	70. Computer science is dep	ended on hexadecim	nal number system	(F)
2 130 °30	100 138 100 150 150 150 150 150	130 15 31 131	100 100 140 120	Carlotte and the second
g 134 129 139 139	(n) (m) (10) (h) (m) (m) (m) (m)	0 130 140 150 150 150 150 150 150 150 150 150 15		150 **3

ge vou nie tae suit lâk syn tse ton Lab kie 199 tse ton Lab kie so tse lân Lab kap hind tse ein kloche san hin

र हा नहीं देश रेक्ट रहा रहा । १० १६० रहा रहा एक १६८ रहे 198 रहा हुए सह १९० रहा 190 रहा रहा रहा रहा रहा रहा रहा

ng nan tal iko ka iko ngo taa ka iga ngo ngo ngo tao iko ga tak ka iko ngo tao ga ika ka ka na na na na na iko

eng nacional se eag num ago nacional nacional se ang nacional ago nacional se ang nacional se en en en en en e Ang

The second with the first two two two two transfers of the two

को राज्य होता रहते होता. १९३९ रही होता होता होते रहते होता होता होता होता होता होता. 25 147 189 180 150 13+ 140 190 190 180 181 181 160 190 190 190 1 which are the action to the ten and the second to

THE SEC ASS AND THE SEC ASSESSED THE SEC ASSESSED. 100 Jan 150 Ja

D 875 19 120 15 120 15 170 190 190 137 157 157 157 158 159 151 150 150

30 (150 150 170 150 190 150 170 170 170 170 170 170 170 170