2024	
(CBCS)	
(5th Semester)	
CHEMISTRY	
EIGHTH (B) PAPER	
(Industrial Chemistry)	
(Optional Paper)	
Full Marks: 75	
Time: 3 hours	
The figures in the margin indicate full marks for the questions	
(SECTION : A-OBJECTIVE)	
(Marks: 10)	
Tick (✓) the correct answer in the brackets provided:	1×10=10
1. In fertilizers, the value of K represents oxides in the form of	
(a) K ₂ O ₂ ()	
(b) K ₂ O ()	
(c) KO ₂ ()	
(d) K_2O_3 ()	
2. Which one of the following is not important raw material for manufacture of cement?	the
(a) Gypsum ()	
(b) Clay ()	
(c) Potassium oxide ()	
(d) Limestone ()	

٥.	Мо	st naturally o	ccur	ring	mono	sac	chari	des b	elong	to th	e	
	(a)	L-series	()								
	(b)	S-series	()								
	(c)	C-series	()								
	(d)	D-series	()								
4.	Du	ring the log pl	nase	of b	acteri	al c	ultur	e, the	cell g	grows	at	
	(a)	maximum ra	te	()							
	(b)	zero rate	()	±.		72					
	(c)	minimum rat	е	()							
	(d)	exponential r	ate	()							
5.	The	energy releas	ed ir	an	explo	sion	of 1	gram	of TN	VT is	appro	ximately
		-										
	(a)	800 joules	()								
	(b)	800 joules	(
	(b) (c)	800 joules 4000 joules	(
6.	(b) (c) (d)	800 joules 4000 joules 3000 joules	()	ng pre	oces	s is t	0				
6.	(b) (c) (d) The	800 joules 4000 joules 3000 joules 1500 joules	((in t)) annir	ng pro	oces	s is t	0				
6.	(b) (c) (d) The	800 joules 4000 joules 3000 joules 1500 joules use of H ₂ SO ₄	((in t)) annir ()	oces	s is t	0				
6.	(b) (c) (d) The (a)	800 joules 4000 joules 3000 joules 1500 joules use of H ₂ SO ₄ control the pH	() (in t)) annir (()	oces	s is t	0				

١.	Coa	gasification	18	the pr	ocess	of produ	acing			
	(a)	oil gas	()						
	(b)	syngas	()						
	(c)	water gas		()						
	(d)	producer ga	s	()		1000	1- 12 1-750		
8.	Wa	ter gas is a 1	mix	ture of	ī		. 30			
	(a)	CO ₂ and H ₂	2	(Press		
	(b)	CO and H ₂ O	C	()					
	(c)	CO and H ₂		()					
	(d)	CO ₂ and H	₂ O	()		idor. s	er jin still Fil	rofati a	
9	. Th	e aliphatic po	olya	mides	are g	enerally	known as	3		
	(a)	Teflons	()						
	(b)	polyesters		()						
	(c)	nylons	()			15			
	(d)	resins	()						
10	o. Th	ne process of	cor	nvertin	g fiber	s direct	ly into fal	oric is		
	(a) spinning		()						
	(E) knitting	(()						
	(0	e) weaving		()						
	(0	d) felting	()						

(SECTION : B-SHORT ANSWERS)

(Marks: 15)

Answer the following:

 $3 \times 5 = 15$

UNIT-I

1. What are the adverse effects of excessive use of nitrogen?

OR

2. What is quartz glass? Why is it widely used for manufacture of laboratory apparatus?

UNIT-II

3. Write a brief note on microbial enzyme.

OR

4. What are reducing sugars and non-reducing sugars? Give suitable examples for each.

Unit—III

5. What is guncotton? How is it prepared?

OR

6. Write two methods of tannery effluents treatment processes.

Unit-IV

7. Write a brief note on octane number.

OR

8. Why is lime used in the dehairing of skins in leather industry?

Unit-V

9. How will you prepare polyesters? Mention their uses.

OR

10. Write a brief note on the colour consideration in textile industry.

(SECTION : C-DESCRIPTIVE)

(Marks: 50)

Answer the following:	5=50
Unit—I	
1. (a) What are primary nutrients? Mention them.	3
(b) What is soft glass? What is its composition?	3
(c) Describe in brief about nitrogenous fertilizers like urea. OR	4
2. (a) What are the essential raw materials in the manufacture of cemen	it? 3
(b) Explain why CSP (calcium superphosphate) is the principal phosphate fertilizer.	ite 3
(c) Using a suitable equation, describe the manufacture of calciu ammonium nitrate.	ım 4
Unit—II	
3. (a) What are polysaccharides? What are their main functions?	3
(b) What are the advantages of microbial enzymes over animal or plasources?	ant 3
(c) What are permitted additives? Why are they used as a component food technology?	in 4
/142 5	[Contd.

OR

4.	(a)	Explain different methods of food preservation.	
	(b)	What do you mean by refrigerated storage of food?	
	(c)	What are different stages of growth of microbial culture? Illustrate v diagram.	vith
		Unit—III	
5.	(a)	What are rocket propellants? How are they classified?	
	(b)	What is tanning? How is pH controlled in tanning process?	
	(c)	Give the preparation and chemistry of the following:	2×2=
		(i) Cordite	
		(ii) Picric acid	
		OR :	
6.	(a)	What are the primary objectives of liming process?	3
	(b)	How is nitroglycerine prepared? Why is it manufactured into dynamite	? 3
	(c)	Describe the process of tanning of skins in leather industry.	4
		Unit—IV	
7 .	(a)	What are coal tar-based chemicals?	3
	(b)	Write a brief note on the environmental impact of burning of coal.	3
	(c)	Explain briefly on the process of refining of petroleum.	4
		OR	
8.	(a)	What are fuels? How are they classified?	3
	(b)	What is allothermal process of coal gasification?	3
	(c)	Explain the following terms:	2=4
		(i) Cracking	
		(ii) Knocking	

Unit-V

9.	(a)	Differentiate between low-density and high-density polyethylene.	3
	(b)	Write a short note on designer's projection in textile designing.	3
	(c)	Discuss the preparation and applications of the following:	2×2=4
		(i) PVC	
		(ii) Polyurethanes	
		OR	
LO.	(a)	Discuss one preparation of phenol-formaldehyde.	3
	(b)	What do you understand by timing in textile designing? On v	what
		factors does it depend?	3
	(c)	Write notes on the following:	2×2=4
		(i) PMMA (polymethyl methacrylate)	
		(ii) Polyester	

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က	Mo	st naturally o	ccur	ing	mon	osaccharides	3. Most naturally occurring monosacchandes belong to the	1.0
	(a)	L-series	_	_				
	(b)	S-series	_	_				
	(c)	C-series	_	_				
	(g)	D-series	_	_				
4.	Du	During the log phase of bacterial culture, the cell grows	nase	of b	acter	ial culture, t	he cell grows at	
	(a)	maximum rate	9	_	-			
	(p)	zero rate	_	_	ž.	#Q		
	(0)	minimum rate	e e	$\overline{}$	_			
	<i>(a)</i>	exponential rate	ate	_				
ı,		The energy released in an explosion of 1	ed in	an	explo		gram of TNT is approximately	e <u>t</u>
	(a)	(a) 800 joules	_	_				
	(p)	4000 joules	_	_				
	(0)	3000 joules	_					
	(g)	1500 joules	$\overline{}$	_				
vi	The	The use of H ₂ SO ₄ in tanning process is	in ts	annir	ng br	ocess is to		
	(a)	control the pH		_	-			
	(9)	soften the hairs	ç	_	_			
	(0)	eliminate salt stains	stains	100	_	_		
	(p)	achieve quick curing	uring	bn.	$\overline{}$	_		

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 Coal gasification is the process of producing (a) oil gas 	icess of producing	
(b) syngas ()		
(c) water gas (
(d) producer gas	With the first being started and the second	
8. Water gas is a mixture of		
(a) CO_2 and H_2 (
(b) CO and H_2O (
(c) CO and H ₂ (
(d) CO_2 and H_2O (
9. The aliphatic polyamides are generally known as	are generally known as	
(a) Teflons		
(b) polyesters ()		
(c) nylons (
(d) resins ()		
10. The process of converting fibers directly into fabric is	g fibers directly into fabric is	
(a) spinning ()		
(b) knitting ()		
(c) weaving (40	
(d) felting ()		
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(SECTION : B—SHORT ANSWERS

(Marks: 15)

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3×5=15

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(SECTION: C-DESCRIPTIVE)

(Marks: 50)

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UNIT—II

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- What are permitted additives? Why are they used as a component in food technology? Ö

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	<i>(q)</i>	Write a brief note on the environmental impact of burning of coal.	
	(c)	•	
		OR	
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	(c)	Explain the following terms:	
		(i) Cracking	
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UNIT-V

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	6	

OR

Polyurethanes

(11)

10. (a) (b)

PVC

(i) PMMA (polymethyl methacrylate)

(ii) Polyester

Write notes on the following:

(5)

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