(7 pages) **Reg. No. :** 

# Code No. : 20286 E Sub. Code : JMCH 62/ SMCH 62

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Sixth Semester

 ${\rm Chemistry}-{\rm Core}$ 

## ORGANIC CHEMISTRY — IV

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A —  $(10 \times 1 = 10 \text{ marks})$ 

Answer ALL questions.

Choose the correct answer.

#### 1. Which is aldohexose?

- (a) Fructose (b) Glucose
- (c) Sucrose (d) Cellulose

### 2. D(+) Glucose and D(+) Mannose are

- (a) Epimers (b) Anomers
- (c) Enantiomers (d) None of these

3.	Phenol is
	(a) Acidic
	(c) Amphoteric
4.	Which is O-isomer?

(a) Phthalic acid (b) Iso-phthalic acid

(b)

(d)

Basic

Neutral

- (c) Tere-phthalic acid (d) Mandelic acid
- 5. Which rearrangement reaction is used in assigning configuration of betoximes?
  - (a) Hofmann (b) Benzidine
  - (c) Curtius (d) Beckmann
- 6. The reagent used in Hofmann rearrangement is
  - (a)  $Na_2CO_3$  (b)  $H_2SO_4$
  - (c)  $NaOH/Br_2$  (d) None of these
- 7. Generally isoprene units of terpenes are joined in the fashion
  - (a) Head Head (b) Tail Tail
  - (c) Head Tail (d) None of these

Page 2 Code No. : 20286 E

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	(a)	n-butyl	(b)	iso-butyl				
	(c)	iso-propyl	(d)	n-propyl				
9.	Spec comp	troscopy used to oound	detec	et conjucation				
	(a)	U.V.	(b)	I.R.				
	(c)	N.M.R.	(d)	None of these				
10.	Number of NMR signals given by acetone							
	(a)	1	(b)	2				
	(c)	3	(d)	4				
PART B — $(5 \times 5 = 25 \text{ marks})$								

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 250 words.

11. (a) Explain epimerisation with an example.

Or

(b) Explain the structure of starch.

Page 3 Code No. : 20286 E

in a

- 12. (a) Write short notes on the following :
  - (i) Kolfe reaction
  - (ii) Reimer-Tiemann reaction.

 $\mathbf{Or}$ 

- (b) Give the mechanism of Perkin and Claisen reactions.
- 13. (a) Explain the following rearrangement reactions :
  - (i) Pinacol-Pinacolone
  - (ii) Beckmann.

Or

- (b) Explain the following rearrangement reactions :
  - (i) Benzil-Benzilic acid
  - (ii) Curtius.
- 14. (a) Explain Hofmann's exhaustive methylation method.

Or

(b) Give the synthesis of nicotine.

Page 4 Code No. : 20286 E [P.T.O.] 15. (a) What is chemical shift? Explain.

 $\mathbf{Or}$ 

(b) Sketch the NMR spectrum of propanoic acid and explain.

PART C —  $(5 \times 8 = 40 \text{ marks})$ 

Answer ALL questions, choosing either (a) or (b).

Answer should not exceed 600 words.

- 16. (a) (i) Write a note on muta rotation. (5)
  - (ii) Write Pentose  $\rightarrow$  Hexose conversion. (3)

Or

- (b) (i) Give any two reactions of glucose.
  - (ii) Give any four uses of cellulose.
- 17. (a) Write short notes on the following :
  - (i) Benzoin Condensation
  - (ii) Vanillin
  - (iii) Michler's ketone.

Or

Page 5 Code No. : 20286 E

- (b) Write short notes on the following :
  - (i) Coumarin
  - (ii) Knoevenagal reaction
  - (iii) Ortho effect.
- 18. (a) Explain the following rearrangements :
  - (i) Claisen
  - (ii) Wagner-Meerwein
  - (iii) Hofmann.

Or

- (b) Explain the following rearrangements :
  - (i) Benzidine
  - (ii) Fries
  - (iii) Baeyer-Villiger
- 19. (a) Elucidate the structure of piperine.

#### Or

(b) Elucidate the structure of citral.

Page 6 Code No. : 20286 E

- 20. (a) Define the following :
  - (i) Chromophore
  - (ii) Bathochromic shift
  - (iii) Hypochromic shift.

Or

- (b) (i) Explain spin-spin splitting.
  - (ii) How is I.R. Spectroscopy used to identify the type of hydrogen bonding?

Page 7 Code No. : 20286 E