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Reg. No. :

Code No. : 20068 E Sub. Code : AACH 21

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Second/Fourth Semester

Chemistry — Allied

ALLIED CHEMISTRY — II

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Select the organic compound which is not aromatic
(a) Naphthalene (b) Benzene
(c) Cyclohexane (d) Anthracene
2. Find out the product when benzene reacts with acetyl chloride in presence anhydrous $AlCl_3$
(a) Chlorine gas (b) Chlorobenzene
(c) Acetophenone (d) Acetic acid

3. Identify the isobar from the following

- (a) $^{12}C_6$ and $^{13}C_6$
- (b) $^{14}C_6$ and $^{14}N_7$
- (c) $^{16}O_8$ and $^{14}N_7$
- (d) 1H_1 and 2H_1

4. Which of the following is correct statement?

- (a) When n/p ratio increases nuclear stability increases
- (b) When n/p ratio increases nuclear stability decreases
- (c) When n/p ratio decreases nuclear stability increases
- (d) Nuclear stability does not depend upon the n/p ratio

5. Which of the following statement is not correct?

- (a) Monosaccharides cannot be hydrolysed
- (b) A disaccharide can be hydrolysed to two monosaccharide units
- (c) Polysaccharide contain ten or more monosaccharide units
- (d) Oligosaccharide has more than ten monosaccharide units

6. Which of the following nucleic acid?
(a) Glucose (b) Fructose
(c) DNA (d) Glycine
7. Which of the following has nitrogen as one of the components?
(a) Water gas (b) Gobar gas
(c) Producer gas (d) LPG
8. Find out the definition of soap.
(a) Sodium salt of higher fatty acids
(b) Sodium salt of phenol
(c) Sodium salt of salicylaldehyde
(d) Potassium salt of salicylic acid
9. Select the example for antipyretics:
(a) Aluminium hydroxide
(b) Acetyl salicylic acid
(c) Hydrogen peroxide
(d) All the above

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10. Identify the cause of diabetes
(a) Insulin deficiency
(b) Calcium deficiency
(c) Excess of phosphate
(d) Fluoride deficiency

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) State and explain Huckel's rule with suitable examples.
Or
(b) Predict the products when anthracene is
(i) reduced using Na/ethanol on heating
(ii) reduced by Ni/H₂ at 200-250°C and
(iii) oxidized using potassium dichromate
12. (a) Explain briefly the mass defect and binding energy.
Or
(b) State and explain the group displacement law.

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[P.T.O.]

13. (a) What are purines and pyrimidines? Explain them.

Or

(b) What is RNA? Explain the different types of RNA.

14. (a) What are detergents? Discuss their cleansing action.

Or

(b) How is Portland cement manufactured?

15. (a) Explain any three water borne diseases.

Or

(b) Mention any three medicinal plants. Explain their importance.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) How are the following obtained from benzene?

(i) Nitrobenzene

(ii) Benzene sulphonic acid

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(iii) Benzene hexachloride

(iv) Acetophenone

(v) Toluene

Or

(b) Describe briefly the preparation and any three chemical properties of naphthalene.

17. (a) Describe briefly the applications of radioisotopes in radiodiagnosis, therapy and ^{14}C dating.

Or

(b) What are isotopes? Give two examples. How are isotopes separated by diffusion method?

18. (a) What are proteins? How are they classified according to composition? Explain.

Or

(b) What are amino acids? How are they classified? Explain them with suitable examples.

19. (a) What is glass? How is it manufactured? Mention their types.

Or

(b) Compare soaps and detergents.

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20. (a) Discuss any four infective diseases.

Or

(b) Define the following with suitable examples.

- (i) Analgesics
 - (ii) Antimalarials
 - (iii) Antibiotics
 - (iv) Antipyretics
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