

KAMARAJ COLLEGE (Autonomous)

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(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(3 Pages)

Reg. No:.....

Question Code: 26E00311

Course Code: 24UECH31

UG Degree - End Semester Examinations, April 2026

Third Semester
CHEMISTRY ALLIED

Allied Chemistry Paper -I

(For those who joined in July 2024 onwards)

Time : 3Hours

Maximum : 75 Marks

PART - A (10 × 1 = 10 Marks)

Answer ALL Questions

Choose the correct answer :

CO:1 1. The binding energy per nucleon is maximum in

K:2 (a) Helium (b) Iron

(c) Barium (d) Uranium

CO:1 2. Which one of the following nuclei is fertile but not fissile ?

K:2 (a) U-232 (b) U-235

(c) U-238 (d) Pu-239

CO:2 3. Which one of the following has nitrogen as one of the components?

K:2 (a) Producer gas (b) Gobar gas

(c) LPG (d) CNG

CO:2 4. Muriate of potash is

K:1 (a) KCl (b) KBr

(c) KNO_3 (d) NaNO_3

CO:3 5. The H-C-H bond angle in ethylene is

K:2 (a) 60° (b) 90°

(c) 120° (d) 180°

CO:3 6. + I effect group is

K:1 (a) $-\text{NO}_2$ (b) $-\text{OH}$

(c) $-\text{Cl}$ (d) $-\text{CH}_3$

- CO:4 7. Kerosene can be separated from water by
K:3 (a) filtration (b) extraction
(c) distillation (d) evaporation
- CO:4 8. _____ is used as locating agent in TLC.
K:2 (a) Iodine (b) Bromine
(c) cellulose (d) starch
- CO:5 9. The chemical name of aspirin is
K:2 (a) Salicylic acid (b) Acetyl salicylic acid
(c) Methyl salicylate (d) Phenyl salicylate
- CO:5 10. An antipyretic is
K:2 (a) Morphine (b) Penicillin
(c) Barbiturates (d) Paracetamol

PART - B (5 X 5 = 25 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 250 words.

- CO:1 11. (a) Explain Soddy's group displacement law.
K:3 **(OR)**
(b) Distinguish between nuclear fission and nuclear fusion.
- CO:2 12. (a) Write the composition and uses of water gas.
K:4 **(OR)**
(b) Explain the use of attractants and repellents in vector control.
- CO:3 13. (a) Arrange the following acids in the order of increasing
K:5 acidity.
 $\text{CH}_3\text{CH}_2\text{COOH}$, $\text{CH}_3\text{CHClCOOH}$, $\text{ClCH}_2\text{CH}_2\text{COOH}$
(OR)
(b) Ammonia is less basic than methylamine -Justify
- CO:4 14. (a) Illustrate the principle involved in volumetric analysis.
K:4 **(OR)**
(b) Discuss the applications of paper chromatography.
- CO:5 15. (a) Define antipyretics and anaesthetics with suitable examples.

K:3

(OR)

(b) Write a method of preparation and any two uses of Teflon.

PART - C (5 X 8 = 40 Marks)

Answer ALL Questions choosing either (a) or (b).

Answer should not exceed 500 words.

CO:1 16. (a) Define the following terms with one example each.

K:3

i) isotopes ii) isobars iii) isotones iv) isomers

(OR)

(b) Explain the applications of radioactive isotopes.

CO:2 17. (a) How are the following fertilizers prepared? Mention its uses.

K:4

i) Urea ii) Ammonium sulphate

(OR)

(b) What are pesticides? How are they classified based on its use and chemical composition?

CO:3 18. (a) Describe the hybridization and geometry of methane molecule.

K: 3

(OR)

(b) Explain electromeric and mesomeric effect with suitable examples.

CO:4 19. (a) Explain the following separation techniques.

K:4

i) Distillation ii) Crystallization

(OR)

(b) Discuss the principle and applications of column chromatography.

CO:5 20. (a) What are antibiotics? Sketch the structure and uses of Penicillin and Streptomycin.

K:1P

(OR)

(b) What are artificial sweeteners? Sketch the structure and uses of saccharin and aspartame.