

RET/12/Test B**606****Medicinal Chemistry****011**

Question Booklet No.

(To be filled up by the candidate by **blue/black ball-point pen**)

Roll No.

--	--	--	--	--	--	--	--

Roll No. (Write the digits in words)

Serial No. of OMR Answer Sheet

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES(Use only **blue/black ball-point pen** in the space above and on both sides of the **Answer Sheet**)

1. Within 10 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of faulty Question Booklet, bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope*.
3. *A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.*
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
6. *No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.*
7. *Any changes in the aforesaid-entries is to be verified by the invigilator, otherwise it will be taken as unfair means.*
8. *This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.*
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).*
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit *both OMR Answer Sheet and Question Booklet* at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 15

1. Plants receive their nutrients from ?
 - (1) Chlorophyll
 - (2) Atmosphere
 - (3) Light
 - (4) Soil

2. Common name of washing soda is :
 - (1) Sodium Carbonate
 - (2) Calcium bicarbonate
 - (3) Sodium bicarbonate
 - (4) Calcium carbonate

3. Which of the gas is not known as green house gas ?
 - (1) Methane
 - (2) Nitrous oxide
 - (3) Carbon Dioxide
 - (4) Hydrogen

4. Hardness of water can be removed by adding ?
 - (1) Chlorine
 - (2) Washing Soda
 - (3) Potassium Permanganate
 - (4) Bleaching Powder

5. Which scientist discovered the radio active element 'Radium' ?
 - (1) Isaac Newton
 - (2) Albert Einstein
 - (3) Benjamin Franklin
 - (4) Marie Curie

6. The word 'Satyamev Jayate' inscribed below the base plate of the emblem of India are taken from :

- (1) Rigveda
- (2) Satapatha Brahmana
- (3) Mundaka Upanishada
- (4) Ramayana

7. The absorption of ink by blotting paper involves :

- (1) Viscosity of ink
- (2) Capillary action phenomenon
- (3) Diffusion of ink through the blotting
- (4) Syphon action

8. Combination of Satva, Atma and Sharir is known as :

- | | |
|--------------|--------------|
| (1) Tridosh | (2) Trimarma |
| (3) Trisutra | (4) Tridanda |

9. All are the types of Kapha except :

- | | |
|--------------|-------------|
| (1) Sleshaka | (2) Kledaka |
| (3) Bodhaka | (4) Sadhaka |

10. Upanishadas are in number ?

- | | |
|--------|---------|
| (1) 8 | (2) 18 |
| (3) 51 | (4) 108 |

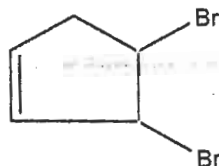


11. The major product of addition reaction of equi-molar amount of Br_2 and cyclopenta-1,3-diene at high temperature is :

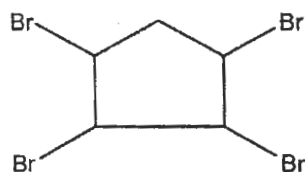
1.



2.



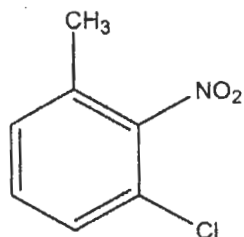
3.



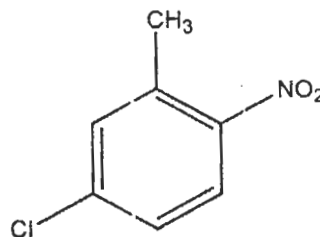
4. None of these

12. The major product of mono chlorination of ortho-nitrotoluene is :

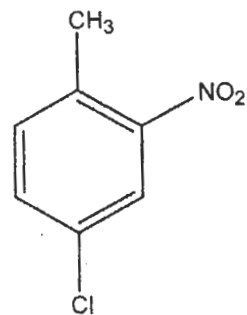
1.



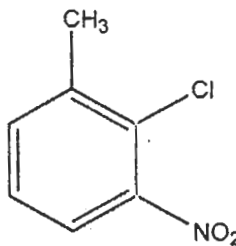
2.



3.



4.



13. Compound does not give haloform reaction is :

1. $\text{CH}_3\text{CH}_2\text{OH}$

2. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

3. $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$

4. CH_3COCH_3

14. Compound does not show only one signal in $^1\text{H-NMR}$:

- | | |
|--------------------------------|--|
| 1. CH_3COCH_3 | 2. CH_3CH_3 |
| 3. $\text{CH}_3\text{-O-CH}_3$ | 4. $\text{CH}_3\text{CH}_2\text{CH}_3$ |

15. Which of the following can be used as an oxidizing agent for conversion of 1° alcohol into aldehyde :

- | | |
|--------------------------------------|----------------------------------|
| 1. Pyridinium Chlorochromate | 2. Tollen's Reagent |
| 3. $\text{KMnO}_4/\text{OH}^\ominus$ | 4. Conc. H_2SO_4 |

16. Methane can be prepared by :

- | | |
|-----------------------|--------------------|
| 1. Wittig Reaction | 2. Wurtz Reaction |
| 3. Frankland Reaction | 4. Decarboxylation |

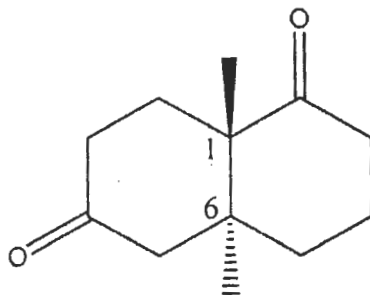
17. Highest energy electronic transition is :

- | | |
|------------------------|------------------|
| 1. $\sigma - \sigma^*$ | 2. $\Pi - \Pi^*$ |
| 3. $n - \sigma^*$ | 4. $n - \Pi^*$ |

18. Nicotine is derivative of :

- | | |
|--------------|-----------------|
| 1. Pyridine | 2. Pyrimidine |
| 3. Quinoline | 4. Isoquinoline |

19. The configuration (*R*, *S*-Notation) at C-1 and C-6 of the compound below is :



- | | |
|-------------|-------------|
| 1. $1S, 6S$ | 2. $1S, 6R$ |
| 3. $1R, 6R$ | 4. $1R, 6S$ |

20. H_3O^+ ion will have shape :
1. Trigonal Planar
 2. Pyramidal
 3. Angular
 4. None of these
21. The reaction that proceeds through a carbocation species is .
1. Friedal-Crafts Reaction
 2. Wittig Reaction
 3. Claisen Reaction
 4. Aldol Condensation
22. The optical rotation of freshly prepared solution of α -D glucose changes gradually from 111° to 52.5° due to :
1. Decomposition
 2. Racemization
 3. Mutarotation
 4. Partial Resolution
23. Which of the following is an organometallic compound :
1. Sodium methoxide
 2. Lithium acetate
 3. Lithium dimethylamide
 4. Phenyl lithium
24. Alanine is similar to serine in the same way that :
1. Val is similar to Thr
 2. Phe is similar to Tyr
 3. Phe is similar to Trp
 4. Ser is similar to Thr
25. Diabetic patients are advised a low glycaemic index diet. The reason for this is :
1. They require less carbohydrate than healthy individuals
 2. They cannot assimilate ordinary carbohydrates
 3. They need to have slow, but sustained release of glucose in their blood stream
 4. They can tolerate lower, but not higher than normal blood sugar levels
26. Which is true statement for β -oxidation of fatty acids :
1. Formation of malonyl Co-A
 2. Formation of acetoacetyl ACP
 3. Transport of acyl Co-A into mitochondria
 4. Use of NADPH_2
27. The globular protein when treated with organic solvent, gets denatured. The main interaction which is affected on treatment with organic solvent is :
1. Hydrogen bonds
 2. Covalent bonds
 3. Ionic interaction
 4. Hydrophobic interaction

28. Which class of immunoglobulins will increase, in a case of allergy :

- | | |
|--------|--------|
| 1. IgA | 2. IgG |
| 3. IgM | 4. IgE |

29. The amino acid derivative hormone epinephrine is responsible for :

- | | |
|--|-----------------------|
| 1. Release of lipids by adipose tissue | 2. Glycogen breakdown |
| 3. Increased cardiac activity | 4. All of these |

30. Which one of the following is incorrect for the isotopes of hydrogen :

- | | |
|-----------------|------------------|
| 1. ^1H | 2. ^2H |
| 3. ^3H | 4. None of these |

31. Which of the following is true:

- | | |
|--------------------------------|--------------------------------|
| 1. Amoxicillin is antimalarial | 2. Paracetamol is antibiotic |
| 3. Ampicillin is antipyretic | 4. Chloroquine is antimalarial |

32. Which of the following is correct for transition metals giving coloured ions and exhibiting variable valencies :

1. Completely filled d-orbitals
2. Half or completely filled d-orbitals
3. Incompletely filled d-orbitals
4. Several co-ordination compounds / completely vacant d-orbitals

33. Which of the following is incorrect:

1. Fog is one of the examples of colloidal system
2. Lyophilic and lyophobic sols are some of the types of colloidal systems
3. Milk and cheese are some of the examples of colloidal systems
4. Micelle is not the example of colloidal system

34. Which of the following is correct in exhibiting the diagonal relationship :

- | | |
|---------------|---------------|
| 1. Li with Al | 2. Be with Al |
| 3. Na with Ca | 4. H with Cl |



35. Which of the following is incorrect :
1. The bond-order of He_2 is zero
 2. The bond-order of H_2 is 1
 3. Outer electronic configuration of all inert gas elements is $np^6 ns^2$
 4. Outer electronic configuration of all inert gas elements is $np^6 ns^2$ except that of He
36. Which of the following is true for the superphosphate of lime :
1. CaSO_4
 2. $\text{Ca}(\text{H}_2\text{PO}_4)_2$
 3. A mixture of $\text{Ca}(\text{H}_2\text{PO}_4)_2$ and CaSO_4
 4. $\text{Ca}_3(\text{PO}_4)_2$
37. An enzyme affects the rate of a chemical reaction by :
1. Decreasing the free energy of the reaction
 2. Increasing the free energy of the reaction
 3. Lowering the energy of activation of the reaction
 4. Raising the energy of activation of the reaction
38. Beer-Lambert Law does not hold good if the absorbance is measured :
1. At the absorbance maxima
 2. Using a monochromatic light
 3. Below the critical maximum solute concentration
 4. Above the critical maximum solute concentration
39. Which of the following six-membered ring compounds has the most planar structures:
1. Glucose
 2. Cyclohexane
 3. Inositol
 4. Cytosine
40. Each of the following may be used to estimate the molecular weight of a protein *Except*:
1. Sucrose density gradient centrifugation
 2. Ion exchange chromatography
 3. SDS (sodium dodecyl sulfate) gel electrophoresis
 4. Gel filtration chromatography

Attempt any five questions. Write answer in 150-200 words. Each question carries 16 marks. Answer each question on separate page, after writing Question Number.

1. Write different kinds of macromolecules present in our body.
2. Write significance of cholesterol in our body.
3. What is Beer-Lambert's Law?
4. Metabolic significance of fructose-1,6-bisphosphate
5. Biochemical blood picture of a patient with metabolic syndrome
6. A. Indicate, how will you differentiate with the help of IR spectroscopy?

(i) Phenol and Benzoic acid

(ii) Diethyl ketone and Ethylamine

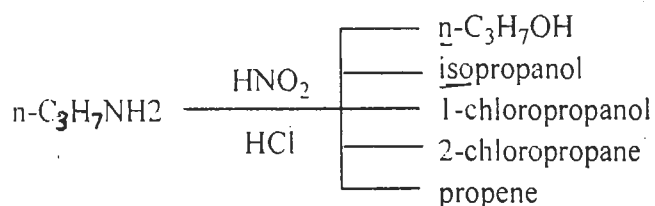
B. Give the number of signals and their approximate chemical shifts for the following compounds in PMR spectrum :

(i) Methanol

(ii) Methyl ethyl ketone

7. Isoprene Rule

8. Accounts for the various products in the following reaction :



9. A hydrocarbon (A) having the molecular formula C_8H_{10} on oxidation gives a dicarboxylic acid which on nitration gives only one mononitro compound. Write the structure of A and B.
10. Explain, why the position-2 is favourable for nucleophilic substitution whereas position-3 is favourable for electrophilic substitution reactions in pyridine?

