

VIVEKANANDA COLLEGE, ALIPURDUAR

Test Examination-2025

Subject: Chemistry

Paper- DSC, 2nd Semester

Assignment

F.M- 30

A. Answer any four questions from the following: (5x4=20)

1. What is the significance of the negative sign in Bohr's equation relating the energy of H-atom? State the limitations of Rutherford's atomic model. (3+2)
2. Draw the shape of dx^2-y^2 & dz^2 orbital's. Write the significance of spin quantum number. (1+1+3)
3. The dipole moment of CO_2 is zero, but that of water is 1.85D- explain. Why o-nitro phenol is volatile in nature but p-nitro phenol doesn't. (2+3)
4. Which is more covalent between $CuCl_2$ and $ZnCl_2$ and why? $NaCl$ is soluble in water but not in hexane- explain. (3+2)
5. Why we get PCl_5 but not the PH_5 ? Write examples of two such compounds in which expansion of octet of central atom takes place. (3+2)

B. Answer any one question from the following: (10x1= 10)

1. Explain the geometry of XeF_4 & ClF_3 in terms of VSEPR theory. (5+5)
2. Explain Fajan's rule with proper example. (10)
3. In 2s orbital the maximum number of electron is 2- justify. Determine the ionization energy of H-atom. (5+5)

VIVEKANANDA COLLEGE, ALIPURDUAR

Test Examination-2025

Subject: Chemistry

Paper- IDC, 2nd Semester

Assignment

F.M.: 20

Time: 1 hr

A. Answer any two questions: (5x2=10)

1. Write the names and symbols of some sunscreen substances. What colorants are commonly added to the lipsticks? (2+3)
2. What are sulfa drugs? Give an example. Describe the preparation procedure of sulfa drugs. (1+1+3)
3. Why are synthetic fuels used as alternative fuels? Write the preparation of butadiene from ethanol in petrochemical industry. (2+3)

B. Answer any one question from the following: (10x1= 10)

1. Write four petrochemicals derived from hydrocarbons and their uses. (2.5x4= 10)
2. Prepare Acyclovir from benzoyl chloride. (10)
3. Show the synthesis of Diazepam from p-nitrochlorobenzene.

VIVEKANANDA COLLEGE, ALIPURDUAR
4th SEMESTER
INTERNAL ASSESSMENT
SUBJECT - CHEMISTRY
QUESTION TYPE – ASSIGNMENT
QUESTION MODE – ONLINE
PAPER – MINOR
SESSION – 2024-2025

FULL MARKS – 20

INSTRUCTIONS*****

- Each question carries 4 marks each.
 - Students are to submit the hard copy of the assignment to the teachers in person.
 - A4 sized paper properly stapled and assembled in a stick file is only acceptable.
 - The assignment must be submitted within the stipulated date as given in the college website.
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1. What is Wurtz reaction ? Can it be used to prepare alkane containing odd number of 'C' atoms. Give the preparation of ethane by Wurtz reaction .
 2. What is Saytzeff and Hoffmann elimination ? Give the points of differences .
 3. What is Electrophilic aromatic substitution reaction (ArS_E^2) ? Is Friedel Craft alkylation an ArS_E^2 reaction –Explain .
 4. How does the electronegativity of the 'C' atom varies with bond order ? Give the equation of the Allred –Rochow to calculate the electronegativity , specify each of the terms involved.
 5. How does the Viscosity of the liquids and gases varies with rise in temperature .

VIVEKANANDA COLLEGE, ALIPURDUAR
4th SEMESTER
INTERNAL ASSESSMENT
SUBJECT - CHEMISTRY
QUESTION TYPE – ASSIGNMENT
QUESTION MODE – ONLINE
PAPER – MDC
SESSION – 2024-2025

FULL MARKS – 30

INSTRUCTIONS*****

- Each question carries 5 marks each.
- Students are to submit the hard copy of the assignment to the teachers in person.
- A4 sized paper properly stapled and assembled in a stick file is only acceptable.
- The assignment must be submitted within the stipulated date as given in the college website.

1. Write a note Green chemistry. Mention its principles.
2. What is a green solvent ? Is water a green solvent ? If, yes - Explain.
3. What is Green energy ? How come it is important in today's scenario – Explain.
4. Write down an notable chemical reaction which follows the principles of green chemistry. Also highlight its mechanistic pathway as to how it follows the principles of green chemistry.
5. Give the green synthesis of a compostable plastic made from corn.
6. How CO₂ is replacing environmentally harmful solvents . Explain.

VIVEKANANDA COLLEGE, ALIPURDUAR
6th SEMESTER
INTERNAL ASSESSMENT
SUBJECT - CHEMISTRY
QUESTION TYPE – ASSIGNMENT
QUESTION MODE – ONLINE
PAPER – DSE
SESSION – 2024-2025

FULL MARKS – 20

INSTRUCTIONS*****

- Each question carries 4 marks each.
 - Students are to submit the hard copy of the assignment to the teachers in person.
 - A4 sized paper properly stapled and assembled in a stick file is only acceptable.
 - The assignment must be submitted within the stipulated date as given in the college website.
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1. Write a note on Geochemical cycle of Nitrogen .
 2. What is Ozone depletion ? How CFCs are responsible for Ozone depletion .Give the mechanism in detail.
 3. What is Geothermal energy ? Is it a conventional source of energy ? If ,Yes. why?
Name two more such types of energy as Geothermal energy .
 4. What is Nuclear fusion and Nuclear fission ? What is the source of energy in sun – Explain.
 5. Give the manufacturing process for H₂SO₄ acid.

VIVEKANANDA COLLEGE, ALIPURDUAR

Test Examination-2025

Subject: Chemistry

Paper- SEC, 6th Semester

F.M.: 20

Time: 1 hr

A. Answer any two questions: (5x2=10)

1. Name the chemicals used for vanishing cream. Write down the main ingredients of hair dye. (3+2)
2. Differentiate between cold cream and vanishing cream. What are the typical surfactants used in the preparation of shampoo? (2+3)
3. Why are 'Kaolin' and 'iron oxide' used in face powder? Name two essential oils used in cosmetics. (3+2)

B. Answer any one question from the following: (10x1= 10)

1. Write down the preparation of Nail Lacquers. Mention the ingredients used in shaving cream and describe its functioning. (5+5=10)
2. Write short note on- (2.5x4=10)
 - a) Anti-dandruff shampoo; b) Hair spray; (c) Artificial flavours; d) Cleaning action of shampoo.