BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: PHARMACY **SEMESTER:**
BRANCH: PHARMACY **SESSION:**

SUBJECT: BP301T PHARMACEUTICAL ORGANIC CHEMISTRY - II

TIME: 3.00 Hours **FULL MARK: 75**

INSTRUCTIONS:

1. **The missing data, if any, may be assumed suitably.**
2. **Before attempting the question paper, be sure that you have got the correct question paper.**
3. **Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.**
4. **This question paper consists of (03) three parts. Read the part wise instructions before attempting the questions.**

PART-I

Objective types questions (Instruction: Answer all questions)

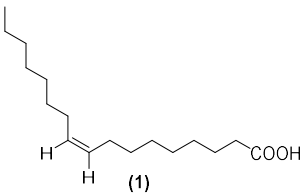
Q1. (10 x 2 = 20 Marks)

A. Define aromatic compounds. Give example

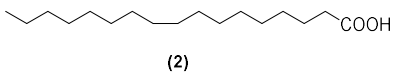
B. State True or False

i) Consumption of *trans* fatty acids is good for health, but *cis* fatty acid harms health.
ii) *The electron withdrawing group increases the basicity of amines*.

C. Which of the following fatty acids will have the lowest melting point? Give reason.



(1)



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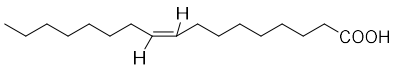
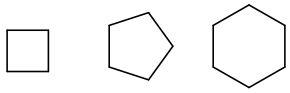


(3)

D. Write the difference in chemistry between fats and waxes.

E. Define acid value. Write its significance.

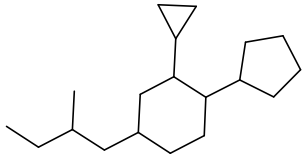
F. According to Bayer Strain theory, calculate the following cycloalkanes' bond angle and angle strains and identify the most stable and least stable compound.

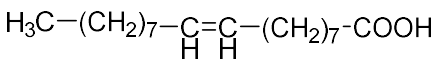

(1) (2) (3)

G. Write the name of TWO drugs along with their structures and uses that contain the following nucleus:

a. Naphthalene
b. Phenanthrene

H. Write the IUPAC nomenclature of the following compounds:

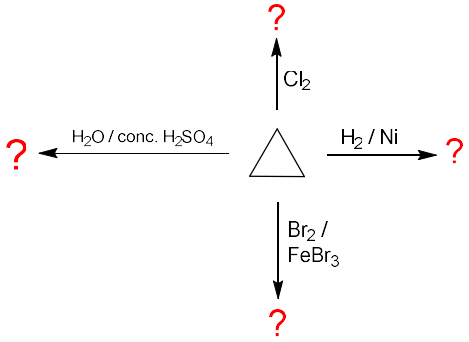

(1)



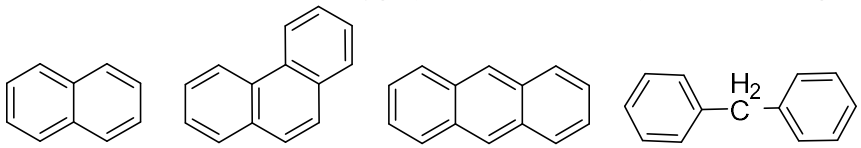
(2)

PTO

I. Draw the products of the following reactions.



J. Write the names of the following polynuclear aromatic hydrocarbon compounds.



(I) (II) (III) (IV)

PART-II
Short Answers
(Instruction: Answer seven out of nine questions)

(7 x 5 = 35 Marks)

Q2. Write Freund's method of synthesis of cycloalkane.

Q3. Write the Howarth method of synthesis of Naphthalene.

Q4. Explain Sachse Mohr's theory of stability of cycloalkane.

Q5. Define and explain the various mechanisms of rancidification of fats.

Q6. Define, classify, and write down the significance of the hydrogenation of oil.

Q7. Write the Friedel Crafts reaction for the synthesis of anthracene and diphenylmethane.

Q8. Explain the effect of substituents on the acidity of phenol.

Q9. Explain why halogens are ring-deactivating groups but are *o* and *p*-directing in nature.

Q10. Explain the effect of acidity on coupling amine or phenol with diazonium salt. Your answer should include all the structures.

PART-III
Long Answers
(Instruction: Answer two out of three questions)

(2 x 10 = 20 marks)

Q11. Explain the Bayer strain theory. Your answer should include the structures of cycloalkanes and calculations of their bond angle and angle strain. Write the limitations of Bayer strain theory.

Q12. Explain the various synthetic evidence for the derivatization of the structure of benzene.

Q13. Explain Coulson and Moffitt's modification theory of cycloalkanes. Explain and draw the mechanism of nitration of benzene.

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