

**B.Sc. CHEMISTRY**  
**FOURTH SEMESTER**  
**PETROLEUM & PETROCHEMICALS**  
**BSC - 406A [REPEAT]**  
[USE OMR FOR OBJECTIVE PART]

**SET**  
**A**

Duration : 1.30 hrs.

Full Marks : 35

Time : 15 min

[ Objective ]

Marks : 10

*Choose the correct answer from the following:*

*1×10=10*

1. What is the leading energy source in India.  
a. Coal  
b. Oil resource  
c. Natural gas  
d. Nuclear power.
2. Which of the following is/are a renewable energy source.  
(i) Solar (ii) petroleum (iii) Hydroelectric (iv) Coal  
a. (i) & (ii)  
b. (i), (ii) & (iii)  
c. (ii) & (iv)  
d. (i) & (iii)
3. The calorific value of fuel is expressed in the unit  
a. kilojoules per litre  
b. joules per litre  
c. joules per kilogram  
d. kilojoules per kilogram.
4. In fractional distillation of petroleum, the vapour of highest boiling point condenses in  
a. uppermost portion  
b. lower most portion  
c. middle portion  
d. do not condense
5. Which of the following petroleum fuel used as fuel for jet engine?  
a. Gasoline  
b. super refined gasoline  
c. Kerosine oil  
d. Diesel oil
6. Which of the following is **not** a component of fraction I, the light oil during fractional distillation of coal tar?  
a. Benzene  
b. p-Xylene  
c. o-xylene  
d. anthracene
7. In the following set of reaction for production of polyester, the petrochemical 'A' and the compound 'B' are respectively:

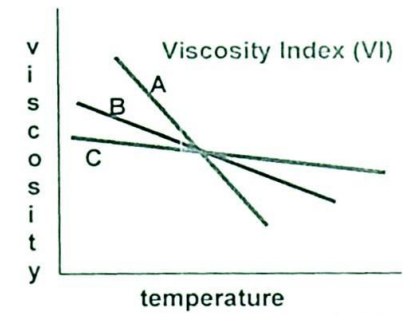


- a. p-xylene and hexamethylene diamine.
- b. p-xylene and ethylene glycol
- c. p-xylene and ethylene diamine
- d. Toluene and ethylene glycol

Pour point indicates the \_\_\_\_\_ of lubricating oil.

- a. Dissolved wax concentration
- b. Total wax concentration
- c. Initial wax concentration
- d. Weight of the wax

Viscosity index (VI) of lubricants A, B and C is as given below: The grade of these lubricants will be



- a.  $A > B > C$
  - b.  $C > A > B$
  - c.  $C > B > A$
  - d.  $B > A > C$
- Producer gas is a mixture of
- a.  $H_2, O_2, N_2$
  - b.  $H_2, CO_2, N_2$
  - c.  $H_2, CO, CO_2$
  - d.  $CO, CO_2, N_2$

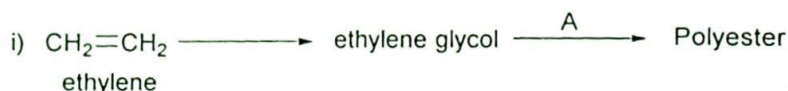
**( Descriptive )**

Time : 1 hr. 15 mins.

Marks : 25

*[ Answer question no.1 & any two (2) from the rest ]*

1. What is the composition of coal? Classify coal in terms of carbon content. 5
  
2. a. What is crude oil? What is its composition? Give a brief account of its formation. 4+6=10  
b. Give a short account of refining of petroleum. What are the different byproducts obtained during the process.
  
3. What is biogas? What is its composition? What kind of waste will produce biogas? Give a short account of production of biogas from cow dung, also sketch out the chemical transformations that happens during the process. 2+2+6  
=10
  
4. What are lubricants? What are their uses? How are they classified? Give a short account solid lubricants. 2+2+2  
+4=10
  
5. a. Give a short account what do you mean by petrochemicals? 4+3+3  
=10  
b. Sketch out, how can you convert the following petrochemicals to the product mentioned? Give only the reaction strategies.



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