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SARDAR PATEL UNIVERSITY

B.Sc. (5<sup>th</sup> Semester) Industrial Chemistry (Vocational) Examination (CBCS), October 2018

US05CICV03: Technology of Petroleum and Petroleum Products

Time: 10:00 am to 01:00 pm Friday, 26<sup>th</sup> October 2018

Total Marks: 70

**Q 1 Answer the following Multiple Choice Questions. (All are compulsory)**

10

- 1 Which of the following treatment used for removal of sulphur from fuels?  
(a) Sulphuric acid (b) Dewaxing (c) Hydrofining (d) Alkali washing
- 2 The highest carbon atom present in the crude oil is  
(a) C<sub>90</sub> (b) C<sub>75</sub> (c) C<sub>70</sub> (d) C<sub>8</sub>
- 3 Which element shows the formation of petroleum is form life source?  
(a) O (b) N (c) H (d) S
- 4 In low pressure synthesis for production of methanol from synthesis gas \_\_\_\_\_ catalyst is used.  
(a) Zinc-Chromium oxide (b) copper based (c) silica (d) alumina
- 5 For production of HCN from methane \_\_\_\_\_ catalyst is used.  
(a) pt- Rhodium alloy (b) copper based (c) silica (d) alumina
- 6 For the removal of unreacted ammonia \_\_\_\_\_ is used as scrubbing agent in the production of HCN.  
(a) H<sub>2</sub>SO<sub>4</sub> (b) water (c) sodium carbonate (d) all
- 7 \_\_\_\_\_ catalyst required to manufacturing of vinyl acetate  
(a) Zn (b) V<sub>2</sub>O<sub>5</sub> (c) zinc acetate (d) copper oxide
- 8 \_\_\_\_\_ temperature required to manufacturing of vinyl acetate  
(a) 170-220 °C (b) 100-200 °C (c) 300-380 °C (d) 200 – 310 °C
- 9 87.3% SiO<sub>2</sub> present in \_\_\_\_\_ catalyst.  
(a) Silica alumina (b) Platinum alumina (c) Copper chloride (d) Silicon carbide
- 10 Manufacturing process of butadiene is \_\_\_\_\_  
(a) Endothermic process (b) exothermic process (c) a&b both (d) None of these.

(1)

(PTO)

**Q 2 Answer the following short questions. (Any TEN) 20**

1. Give brief about modern theory of petroleum formation
2. Write limitations of inorganic theory for the formation of crude oil?
3. Explain formation of crude oil?
4. Write the chemical reaction for preparation of HCN.
5. Give the properties & uses of Methanol.
6. Give the properties & uses of CS<sub>2</sub>.
7. Enlist various chemicals obtained from C<sub>2</sub> (ethane) fraction?
8. Give brief idea of ethanol from ethane.
9. Give the properties and uses of Ethylene oxide.
10. Write limitation of molecular sieve as catalyst.
11. Give the outline how the various chemical obtained from butane.
12. Enlist various catalysts used in petrochemical industry.

**Q 3 Write note on Distillation & Refining of Crude Oil 10**

**OR**

**Q 3 Write notes on 10**

- (1) Composition of Petroleum
- (2) Molecular Sieves

**Q 4 With the help of flow diagram explain the manufacturing of HCN and CS<sub>2</sub>. 10**

**OR**

**Q 4 Write short notes on production of Acetylene 10**

**Q 5 With the help of flow diagram explain manufacture and use of ethylene glycol from ethylene oxide. 10**

**OR**

**Q 5 Write a note on manufacturing of acrylonitrile, also give its properties and uses 10**

**Q 6 Explain the manufacturing of Isobutane. 10**

**OR**

**Q 6 Write the composition, form & general application of following catalyst : 10**

- A. Silica alumina
- B. Cobalt molybdate

— X —

(2)