

Total No. of printed pages = 5

Sc-203/Chem-II/2nd Sem/2016/N

CHEMISTRY - II

Full Marks – 70

Pass Marks – 21

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *six* from the rest.

1. (a) Fill in the blanks : 5×1=5
- (i) The value of B.O.D is _____ than that of C.O.D.
- (ii) CaO is an example of _____ flux.
- (iii) _____ make the cement quick setting.
- (iv) Full form of C.N.G is _____.
- (v) _____ is an example of solid lubricant.

[Turn over

(b) Choose the correct answers : $1 \times 5 = 5$

(i) Bakelite is an example of thermo-plastic / thermosetting polymer.

(ii) Natural rubber is a polymer of isoprene / ethylene / acetylene.

(iii) An isomeric structure of dimethyl ether is ethyl alcohol / propyl alcohol.

(iv) Galvanization is a process of coating iron article with zinc / lead / tin.

(v) Most used vulcanizing agent is sulphur / nitrogen / oxygen.

2. (a) What is meant by pollution ? Name four important causes of pollution. $2+2=4$

(b) Suggest three measures for controlling water pollution. 3

(c) What is greenhouse effect ? 2

(d) Give one example of particulate pollutant. 1

3. (a) Why is roasting or calcination necessary in metallurgy ? 2
- (b) Neatly draw the diagram of blast furnace and label the chemical reactions that take place in manufacturing cast iron. 5
- (c) Compare open-hearth process and Bessemer process for manufacturing steel. 3
4. (a) Give the average composition of Portland cement. 3
- (b) Describe how Portland cement is manufactured by wet process. 4
- (c) What is setting and hardening of Portland cement ? Explain. 3
5. (a) Mention the important characteristics of a good fuel. 3
- (b) Differentiate between high temperature carbonisation (H.T.C) and low temperature carbonisation (L.T.C). 3
- (c) What is gross calorific value and net calorific value ? 2
- (d) Define flash point and fire point of a fuel. 2

6. (a) Classify the lubricant on the basis of their physical state with example. 3
- (b) Name three properties which are to be considered while selecting a lubricant. 3
- (c) Give the mechanism of rusting of iron on the basis of electro-chemical theory. 3
- (d) What is galvanic corrosion? 1
7. (a) Differentiate between addition polymerisation and condensation polymerisation with suitable example. 3
- (b) State the monomers used for making the following polymers : $1 \times 3 = 3$
- (i) Terylene
 - (ii) Bakelite
 - (iii) Teflon
- (c) What is homologous series? Write its characteristics. 3
- (d) Define catenation. 1

8. (a) Write the structural formula of the following compounds :

(i) 3 ethyl, 4 methyl, hex 2 ene

(ii) 1, 3 butadiene.

(b) Give the IUPAC names of the following compounds : 1×3=3

(i) CH_3CHO

(ii)
$$\begin{array}{ccccc} \text{CH}_2 & - & \text{CH} & - & \text{CH}_2 \\ | & & | & & | \\ \text{OH} & & \text{OH} & & \text{OH} \end{array}$$

(iii)
$$\begin{array}{ccccccc} \text{CH}_3 & - & \text{CH} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{COOH} \\ & & | & & & & & & \\ & & \text{OH} & & & & & & \end{array}$$

(c) Write down the cis-trans isomerism of 2-butene. 2

(d) How methane is prepared in the laboratory ? 2

(e) What is aromatic hydrocarbon ? 1