

ANNA UNIVERSITY - 2007
B.E/B.TECH MODEL EXAMINATION
CHEMISTRY-II
(PRODUCTION ENGINEERING)

TIME-3HOUR
MARK-100

ANSWER ALL QUESTIONS

PART - A (10 X 2 = 20 MARKS)

1. What are the components of acidic dry cell? Write its electrode reaction, and indicate its disadvantages.
2. What are the functions of carbon in steel? Explain the role of manganese in carbon steel.
3. Write explanatory note on detonation.
4. Define cetane number. Mention diesel additives, and explain how they reduce knock.
5. Define BOD and COD. What are their implications?
6. What is inferred from DO content of water? Explain how it is estimated for water samples.
7. What are abrasives? Give their uses. Explain why diamond is strong.
8. What are refractories? Write explanatory note on the thermal conductivity and dimensional stability of them.
9. What are fuel cells? How do they differ from internal combustion engines and batteries?
10. Write a note on powder metallurgy.

PART - B (5 X 16 = 80 MARKS)

11. (i) What is heat treatment with respect to steel? Why is it necessary? How is it done by annealing and tempering?
(ii) Explain why alloying of metal is necessary.
(iii) Write a note on heat resisting steels.
12. (a) (i) Describe proximate analysis of coal. Explain how it is helpful to grade coal samples.
(ii) Describe the manufacture of coke by Beehive oven method. Write its characteristics, and give its uses.
Or
(b) (i) What is refining of petroleum? Explain it with a neat sketch. Indicate the fractions, their boiling ranges and uses.
(ii) Define cracking. What are the advantages of catalytic cracking? Describe cracking of heavy oil by moving bed catalytic method.
13. (a) (i) Mention the sources of water pollution.
(ii) Discuss different methods of treatment of domestic sewage.
(iii) Write a note on noise pollution.
Or
(b) (i) Mention the major air pollutants. Indicate their origin and impacts on environment. Describe any three-control methods for them.
(ii) Write a note on soil pollution.

14. (a) (i) What are explosives? What are the requirements for good explosives?

(ii) Enumerate primary and secondary explosives with examples.

(iii) Write a note on gun powder.

Or

(b) (i) What are lubricants? Explain the mechanism of lubrication.

(ii) Mention their important additives and explain their functions.

(iii) Write a note on refrigerants.

15. (a) (i) With the neat sketch of hydrogen–oxygen fuel cell explain its functions.

(ii) Write the electrode reactions, and give its applications.

(iii) Write a note on Ni–Cd batteries.

Or

(b) Write notes on the following :

(i) Rocket propellants

(ii) Green house effect

(iii) Synthetic petrol.

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