

**MANILA REVIEW INSTITUTE, INC.**

3F Consuelo Building, 929 Nicanor Reyes St. (formerly Morayta), Manila

Tel. No. 8-736-MRII (6744)

www.manilareviewinstitute.com

All rights reserved. These handouts/review materials or portions thereof may not be reproduced in any form whatsoever without written permission from MRII.

**CHEMICAL ENGINEERING REFRESHER PROGRAM**

**CPI AND PROCESS CONTROL**

1. It is a condition in which the controller is connected to the process, comparing the set point to the controlled variable and determining corrective action.
  - a. servo control
  - b. regulatory control
  - c. closed loop control
  - d. open loop control
2. The actual response obtained from a controlled variable.
  - a. output variable
  - b. manipulated variable
  - c. load
  - d. input variable
3. A control system element which puts into action the decision made by the controller.
  - a. comparator
  - b. transmitter
  - c. control valve
  - d. sensor
4. A command applied to a control system in order to produce a specific response
  - a. disturbance
  - b. load
  - c. input
  - d. sensor
5. It is used to change the signal from one form to another
  - a. controller
  - b. sensor
  - c. transducer
  - d. control valve
6. It is a characteristic of a measuring instrument that might give different reading results for a specific input, depending on whether the input value is approached from higher or lower values
  - a. Range
  - b. Threshold
  - c. Resolution
  - d. Hysteresis
7. A temperature sensor has a range of 20 - 250 degrees C. A measurement results in a value of 75 degrees Celsius for the temperature. What would be the error if the accuracy is +/- 0.75% FS?
  - a. +/- 1.875 degrees Celsius
  - b. +/- 18.75 degrees Celsius
  - c. +/- 0.15 degrees Celsius
  - d. +/- 1.50 degrees Celsius
8. A temperature sensor has a range of 45 - 250 degrees C. A measurement results in a value of 50 degrees Celsius for the temperature. What would be the actual temperature reading if the span of the instrument is +/- 0.75%?
  - a. 49.66 to 50.34 degrees Celsius
  - b. 34.63 to 65.38 degrees Celsius
  - c. 46.63 to 53.38 degrees Celsius
  - d. 48.46 to 51.54 degrees Celsius

9. Which of the following is not an antibiotic?
- a. penicillin
  - b. streptomycin
  - c. tetracycline
  - d. quinine
10. Antibiotic
- a. prohibits/destroys the growth of micro-organisms
  - b. used as pain killers
  - c. anti-malaria
  - d. anaesthetics
11. Analgesic drugs are
- a. pain killers
  - b. antibiotics
  - c. used in treatment of hypertension
  - d. used in treatment of typhoid
12. Poly-Vinyl Chloride (PVC) is
- a. thermosetting
  - b. thermoplastic
  - c. fibrous material
  - d. chemically active
13. Silicon carbide is
- a. an adhesive
  - b. an abrasive
  - c. a type of glass
  - d. brittle
14. Which is false - In the solvent extraction of oil, the rate of extraction...
- a. decreases with the decrease of thickness of the flakes
  - b. increases with the increasing flake size keeping the flake thickness constant
  - c. increases considerably with the rise of temperature
  - d. decreases as the moisture content of flakes increases
15. Glycerin is not used in the
- a. manufacture of explosive
  - b. conditioning and humidification of tobacco
  - c. manufacture of pharmaceuticals
  - d. manufacture of caustic soda
16. Trinitrotoluene (TNT), an explosive, is made by
- a. nitration of nitrobenzene
  - b. nitration of toluene
  - c. nitration of nitrotoluene
  - d. nitration of benzene
17. Proximate Analysis of coal determines
- a. moisture, ash, sulfur, volatile matter
  - b. moisture, volatile matter
  - c. moisture, sulfur, nitrogen, fixed carbon
  - d. carbon, hydrogen, ash
18. Enamels
- a. give good glossy finish
  - b. are same as varnish
  - c. are prepared for non-drying oil
  - d. do not contain pigment
19. Varnish does not contain
- a. pigment
  - b. thinner
  - c. dryer
  - d. anti-skinning agent
20. In Kraft process of paper manufacture, white cooking liquor consists of caustic soda,
- a. sodium sulfate, sodium carbonate
  - b. sodium sulfite, sodium carbonate
  - c. sodium sulfite, sodium sulfide
  - d. sodium carbonate
21. Frasch process is for
- a. Making oxygen
  - b. Producing helium
  - c. Mining sulfur
  - d. Making nitrogen

22. It is the materials resistance to surface deformation of an external force
- a. brittleness
  - b. hardness
  - c. elasticity
  - d. ductility
23. Fumigant insecticides
- a. kill insects when they eat it
  - b. emit poisonous vapor
  - c. are absorbed throughout the plant
  - d. are stomach poisons
24. A cement manufacturing plant is designed to produce 2,000 MT per day of cement clinker. Cement clinker can typically composed of  $\text{CaO}$ ,  $\text{SiO}_2$ ,  $\text{Fe}_2\text{O}_3$ , and  $\text{Al}_2\text{O}_3$ . If the incoming silica and shale, as raw materials were known to be 20,000 MT and 180,000 MT, respectively. Calculate the following. Assume 300-day operation in a year. In addition, the raw material is composed of limestone (87% $\text{CaO}$ ), iron oxide (24%  $\text{Fe}_2\text{O}_3$ ), shale (60%  $\text{SiO}_2$ , 25% $\text{Al}_2\text{O}_3$ ), and silica (90%  $\text{SiO}_2$ ). What is the composition of  $\text{Al}_2\text{O}_3$  in the cement clinker?
- a. 64%
  - b. 21%
  - c. 6.50%
  - d. 7.50%
25. How many MT of calcium carbonate is needed if the process is intended to produce 200MT of soda ash in a Solvay process.
- a. 210.75
  - b. 220.57
  - c. 110.28
  - d. 188.7

- E N D -

