Respondent 117

Time to complete: 50:16 Points: 30/30

1. Name of The Student

0 / 0 pts
Auto-graded

Kunigiri Shashikanth

2. Admission No.

e.g. U21EE001

0 / 0 pts
Auto-graded

U21PH016

3. Division___

0 / 0 pts
Auto-graded

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CY104S1_MID SEM EXAM-2022

Please read the questions carefully, there are 30 MCQ type questions having one mark each and only one correct answer. The duration of exam is one hour (9:30 am-10:30 am). Submit your response before 10:30 am.

4. A water sample contains 204 mg of CaSO4/L. Calculate the hardness in terms of CaCO3 equivalents in ppm.

1 / 1 pt
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- 120
- 75
- 150 ✓
- 136

5. Permanent hardness is due to the presence of____ 1 / 1 pt

Auto-graded

- $Mg(HCO_3)_2$ & $MgCl_2$
- ✓ $CaCl_2$ & $MgSO_4$
- $Ca(HCO_3)_2$ & $CaCl_2$
- $Ca(HCO_3)_2$ & $CaSO_4$

6. Which of the following statement is incorrect about zeolites? 1 / 1 pt

Auto-graded

- ✓ Zeolites cannot be used as adsorbents
- Zeolites is a microporous material
- Zeolites can be used as dehydrating agents
- Zeolites are used for purification and separation

7. Which of the following statement is false in the water softening process? 1 / 1 pt

Auto-graded

- Exchange of both cations and anions takes place in the Ion-exchange process
- Exchange of only cations takes place in the Zeolite process
- ✓ Exchange of both cations and anions takes place in the Lime-soda process
- No exchange of ions in the Lime-soda process

8. Which of the following statement(s) is incorrect about the boiler corrosion 1 / 1 pt

Auto-graded

- Dissolved oxygen can be reduced by adding hydrazine
- Caustic embrittlement can be prevented by sodium phosphate as softening agent
- Caustic embrittlement is due to the presence of Na2CO3 in the boiler feed
- ✓ None of above

9. Calculate the total hardness in PPM for 1L of water containing the following salts: $CaCl_2$ =22.2 mg, $Ca(HCO_3)_2$= 8.1 mg and $MgCl_2$=9.5 mg

1 / 1 pt
Auto-graded

- 40
- 30
- 45
- 35 ✓

10. Which of the following statement(s) is true in the water softening process?

1 / 1 pt
Auto-graded

- The water containing turbidity can be treated by the zeolite process
- Exhausted anion exchange resign is regenerated by dil. HCl
- The exhausted zeolite is regenerated by percolating through a solution of NaCl ✓
- Exhausted anion exchange resign is regenerated by dil. H_2SO_4

11. 50 mL of standard hard water containing 1 mg of pure $CaCO_3$ per mL consumed 25 mL of EDTA solution. 50 mL of a water sample consumed 25 mL of same EDTA solution. Using complexometric titration method, calculate the hardness of water sample.

1 / 1 pt
Auto-graded

- 1000 ppm ✓
- 500 ppm
- 1250 ppm
- 750 ppm

12. When temporary hard water is boiled, one of the substances formed is _____ 1 / 1 pt

Auto-graded

- calcium bicarbonate
- calcium sulfate
- carbon dioxide ✓
- hydrogen chloride

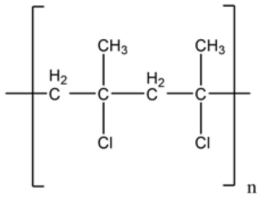
13. Calculate the temporary and permanent hardness of water sample containing Mg(HCO3)2= 14.6mg/L, Ca(HCO3)2= 16.2mg/L, MgCl2= 9.5mg/L, CaSO4=6.8mg/L. Given molecular weight of Mg(HCO3)2= 146 g/mol, Ca(HCO3)2= 162 g/mol, MgCl2= 95 g/mol, CaSO4= 136 g/mol. 1 / 1 pt

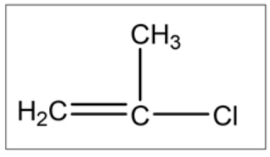
Auto-graded

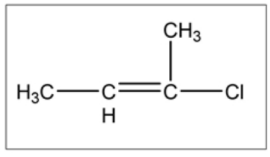
- 15 ppm and 20 ppm
- 20 ppm and 15 ppm ✓
- 20 ppm and 20 ppm
- 15 ppm and 15 ppm

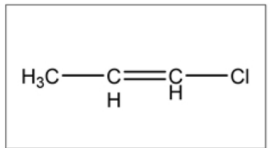
14. 1 / 1 pt

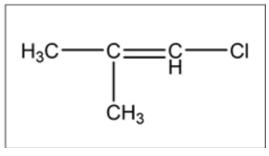
Auto-graded

The monomer of the polymer  is

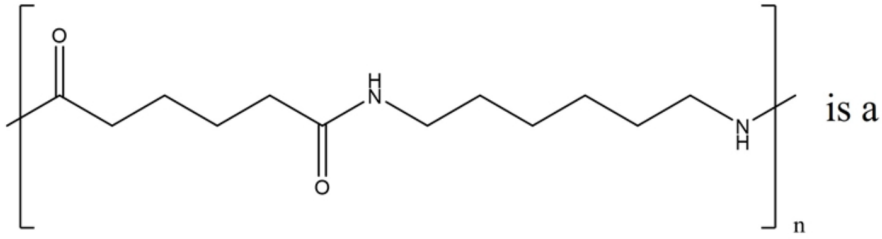
1) 

2) 

3) 

4) 

- 1 ✓
- 2
- 3
- 4

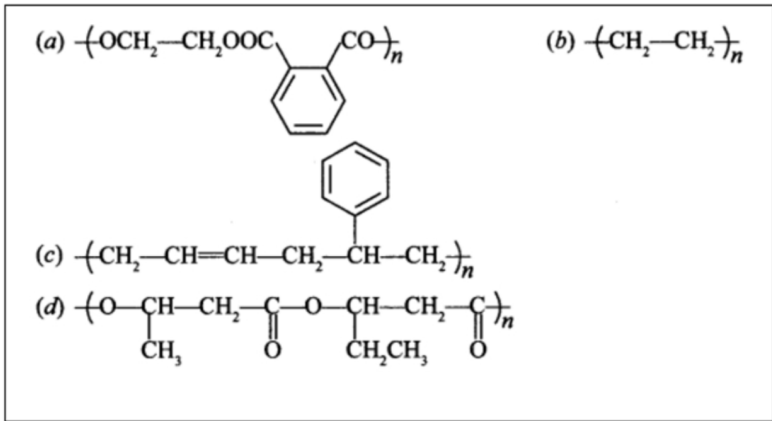
15.  is a

1 / 1 pt

Auto-graded

- Addition polymer
- Homopolymer
- Condensation polymer ✓
- Chain growth polymer

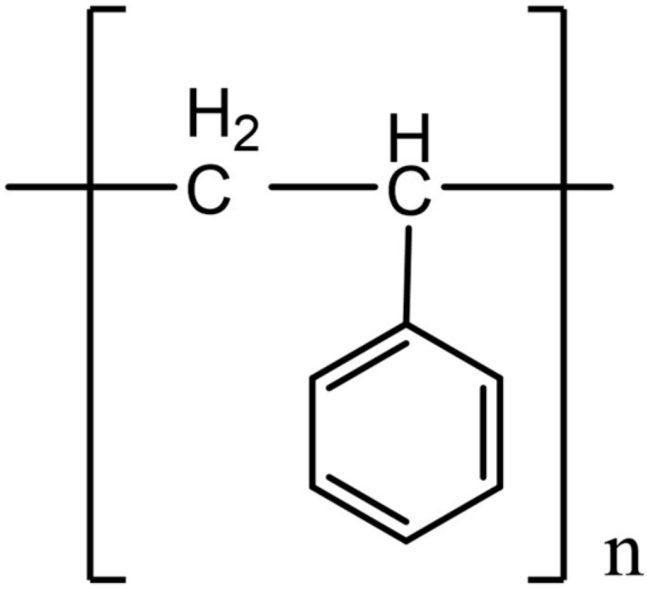
16. In which of the polymer ethylene glycol (HO-CH_2-CH_2-OH) is one of the monomer units?



1 / 1 pt

Auto-graded

- a ✓
- b
- c
- d

17.  is a

1 / 1 pt

Auto-graded

- [x] Homopolymer
- [ ] Random copolymer
- [ ] Alternating copolymer
- [ ] Block copolymer

18. A polymer has a number average molecular weight of 50,000 and a polydispersity of 2. What is the weight average molecular weight?

1 / 1 pt

Auto-graded

- [ ] 50,002
- [x] 100,000
- [ ] 25,000
- [ ] 250,000

19. A sample of atactic polystyrene is separated into 5 fractions; 1 / 1 pt

Auto-graded

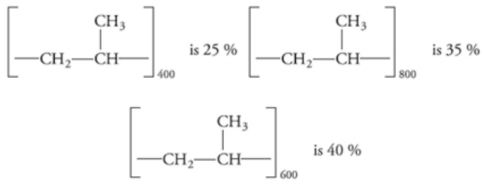
Fraction	Number of Moles	Molecular Weight
1	20	10,000
2	20	20,000
3	20	30,000
4	20	40,000
5	20	50,000

What is the number average molecular weight?

- 2.33×10^4
- 3.0×10^4 ✓
- 3.66×10^4
- 4.33×10^4

20. What is the number average molecular weight of polypropylene polymer with following composition 1 / 1 pt

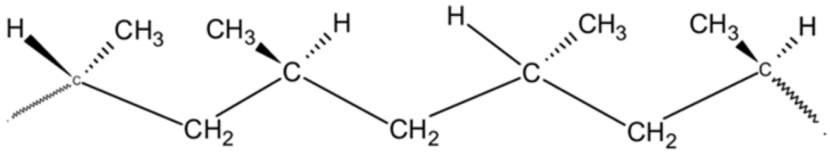
Auto-graded



- 25,556
- 26,040 ✓
- 42,000
- 21, 000

21. The following polymer is an example of 1 / 1 pt

Auto-graded

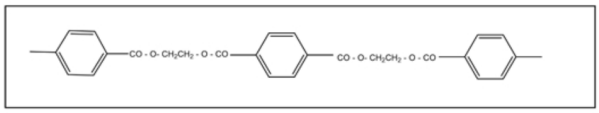


- Isotactic polymer
- Atactic polymer
- Syndiotactic polymer ✓
- Graft polymer

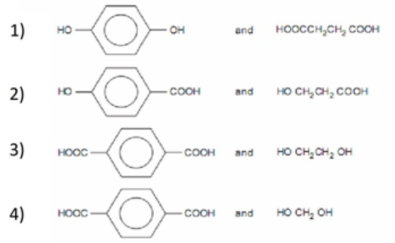
22. A representation of a section of a polymer chain that has been produced from two different monomers is given below

1 / 1 pt

Auto-graded



The two monomers are



- 1
- 2
- 3 ✓
- 4

23. Which type of initiator is needed for emulsion polymerization?

1 / 1 pt

Auto-graded

- Soluble in water ✓
- Insoluble in water
- Partial soluble in water
- Neither soluble nor insoluble in water

24. By adding chromium to steel which of the following property is enhanced?

1 / 1 pt

Auto-graded

- Resistance to corrosion ✓
- Electrical characteristics
- Magnetic property
- Ductility

25. The alloy used for dental filling is___ 1 / 1 pt

Auto-graded

- [x] Amalgam ✓
- [ ] Brass
- [ ] Manganin
- [ ] Bronze

26. The property of metals to be hammered into thin sheets by virtue of this feature 1 / 1 pt

Auto-graded

- [ ] Conductivity
- [ ] Ductility
- [x] Malleability ✓
- [ ] Rancidity

27. Invar steel contain___ 1 / 1 pt

Auto-graded

- [ ] Tungsten
- [ ] Vanadium
- [ ] Molybdenum
- [x] Nickel ✓

28. Choose the correct allotrope of Iron, generally found in steel. 1 / 1 pt

Auto-graded

- [x] Austenite ✓
- [ ] Hematite
- [ ] cementite
- [ ] bauxite

29. Iron exists in two crystalline forms in steel: 1 / 1 pt

Auto-graded

- [x] bcc and fcc ✓
- [ ] bcc and primitive
- [ ] fcc and primitive
- [ ] Iron does not found in the crystalline form

30. Which material is used for filling in sandwich structures? 1 / 1 pt

Auto-graded

- [ ] Polymer
- [ ] Wood
- [ ] Honeycomb
- [x] All of the above ✓

31. Which is a 2D nano material? 1 / 1 pt

Auto-graded

- [ ] Fullerene
- [ ] Nanotube
- [x] Graphene ✓
- [ ] Liposome

32. According to solvent selection guide of Green Chemistry the chlorinated solvents are___ 1 / 1 pt

Auto-graded

- [ ] Best choice
- [ ] Reasonable
- [x] Not recommended ✓
- [ ] None of the above

33. The first listed of the 12 Principles of Green Chemistry is? 1 / 1 pt

Auto-graded

- (●) Prevent waste ✓
- ( ) Catalysis
- ( ) Atom economy
- ( ) Benign solvents