

Jashore Board-2017

Chemistry Second Paper

Subject Code

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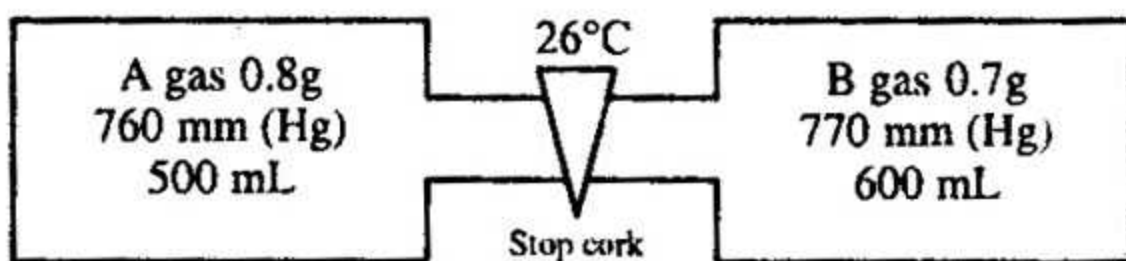
Time — 2 hours 35 minutes

Creative Essay Type

Full marks — 50

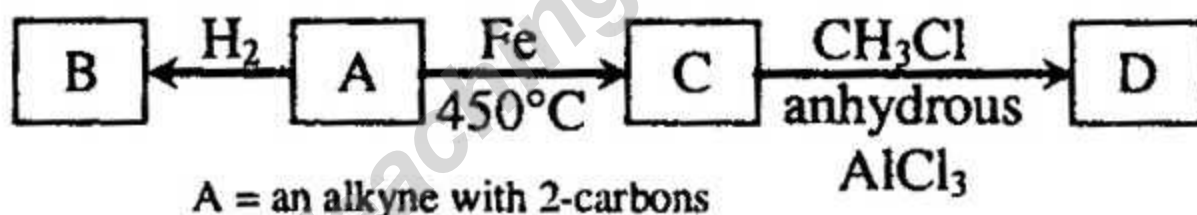
[N.B. -The figures in the right margin indicate full marks. Read the stems carefully and answer the associated questions. Answer any five questions.]

1. ▶



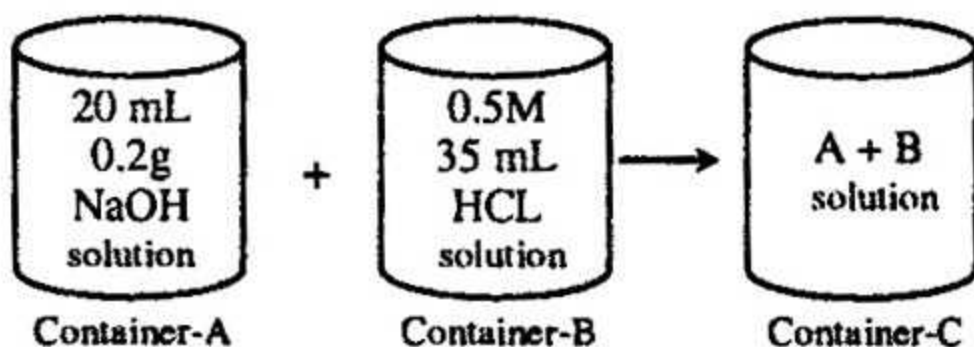
- What is the formula of triphenylmethane? 1
- Ethanal gives aldol condensation, but does not give Cannizzaro reaction. Explain. 2
- Determine the total pressure of the mixture when the stopcock is opened. 3
- Which of the gases between A and B will have higher diffusion rate at the same temperature and pressure? Analyse mathematically. 4

2. ▶



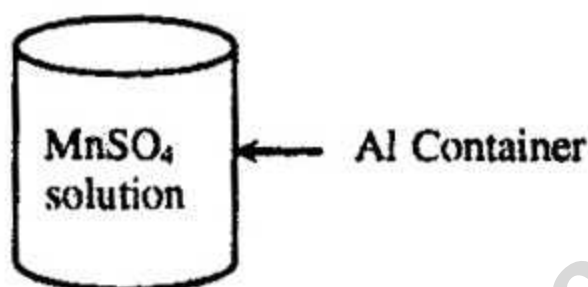
- What is a racemic mixture? 1
- Why is chloroform kept in a colored bottle? 2
- Write with equations the distinguishing reactions between A and B. 3
- Which of the compounds between C and D is more reactive toward electrophilic substitution reaction? Analyse with reasons. 4

3. ★



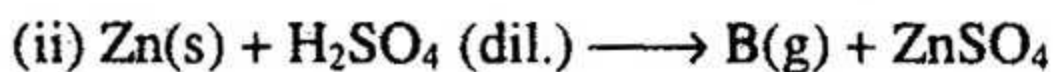
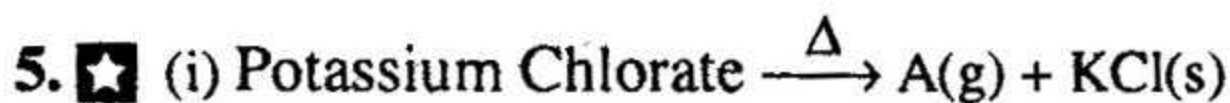
- a. What is absolute temperature? 1
- b. Write down the carbylamine test for the identification of primary amine. 2
- c. Calculate the concentration of solvent of container A in ppm unite. 3
- d. What type of litmus paper colour will the mixed solution change when the solution of container A and B. cantainer are mixed in container C? Analyse. 4

4. ►

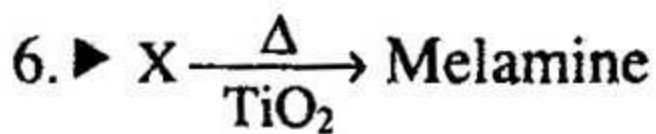


Given, $E^{\circ}_{Mn/Mn^{2+}} = 1.18 \text{ V}$ and $E^{\circ}_{Al/Al^{3+}} = +1.66 \text{ V}$

- a. What is diazotization? 1
- b. Why is alkyne-1 acidic? 2
- c. Write down the cell reactions that take place in container- A. 3
- d. Will there be a hole in the stem's container after some days? Analyse. 4

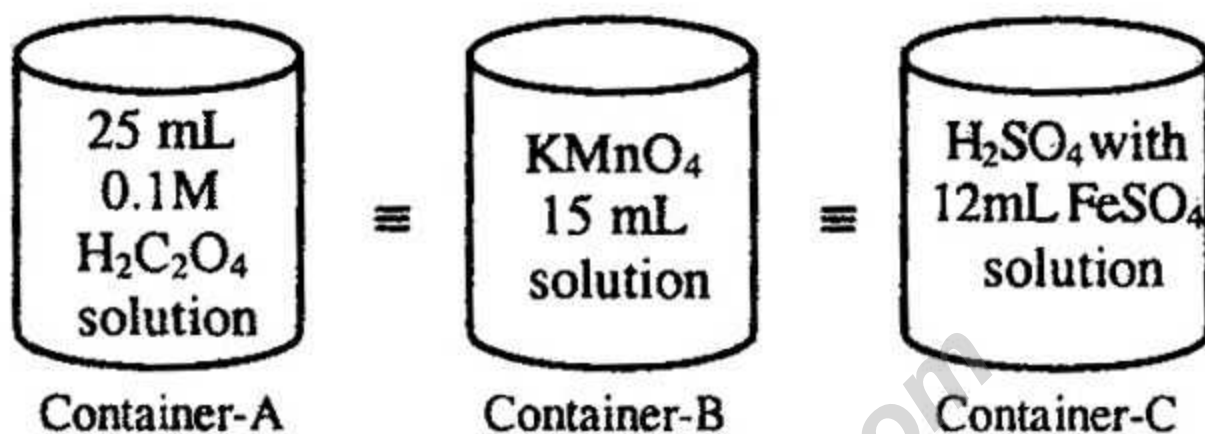


- a. What is carbocation? 1
- b. Why is it not possible to bend a copper wire of diameter 0.50 nm? 2
- c. How many grams of reactant will be required to produce 0.07 g amount of A? 3
- d. How will be the cell formed by the gases A and B? Analyse. 4



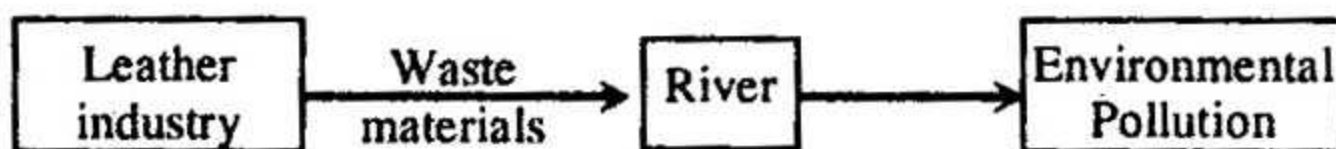
- What is a producer gas? 1
- What do you understand by COD? 2
- Complete the reaction of the stem with equations. 3
- Is it appropriate to use X in excessive quantity in various sectors? Analyse. 4

7. ▶



- What is iodimetry? 1
- Why is phenolphthalein used as indicator for the titration of weak acid and strong base? 2
- Calculate the amount of iron of the solution by mixing the solution B and C. 3
- Analyse, whether the reaction resulting from mixing A and B solutions by ion-electron method and through oxidation-reduction takes place simultaneously or not? 4

8. ★



- What is Zwitter ion? 1
- How does CFC destroy Ozone layer? 2
- Write with equations the role of $\text{Na}_2\text{Cr}_2\text{O}_7$ and H_2SO_4 for the tanning of the given raw material. 3
- Is it possible to remove the pollutants of the given industry responsible for environmental pollution? Analyse.

[N.B. Choose the best answer among the options. Fill the circle in the answer sheet with ball point pen. Each question has value 1.]

1. **Two major sinks of CO₂ are —**
 - (a) Plant and air
 - (b) Sea and plant
 - (c) Forest and soil
 - (d) Plant and fossil fuel
2. **Mixture of which gases is present in Liquid Petroleum Gas?**
 - (a) Propylene and butylene
 - (b) Propane and butane
 - (c) Propane and propylene
 - (d) Propane and ethane
3. **Which one is correct for ideal gases?**
 - i. Gas molecules do not have any attractive forces
 - ii. At N.T.P one mole of gas contains 22.4 litre
 - iii. The volume of gas molecules is very negligible compared to the volume of container.

Which one is correct?

 - (a) i and ii
 - (b) i and iii
 - (c) ii and iii
 - (d) i, ii and iii
4. **Which one is the correct formula of ethanoic anhydride?**
 - (a) CH₃ – CO – CH₂ – CO – CH₃
 - (b) CH₃ – COO – COO – CH₃
 - (c) CH₃ – COO – CO – CH₃
 - (d) CH₃ – CH₂ – O – CH₂ – CH₃
5. **What type of bond is present in organic molecules?**
 - (a) Ionic bond
 - (b) Covalent bond
 - (c) Metallic bond
 - (d) Van der Waals force
6. **Which test is used to identify aldehydes?**
 - (a) Iodoform test
 - (b) Fehling's solution & iodoform test.
 - (c) Fehling's solution & Tollen's reagent test.
 - (d) Tollen's reagent and Lucas reagent test.
7. **At what temperature and pressure glycerine molecule will not be degraded?**
 - (a) 760 mm and 290°C
 - (b) 50 mm and 210°C
 - (c) 2 atm pressure and 180°C
 - (d) 1 atm pressure and 310°C
8. **Which of the following contains sp² hybridisation?**
 - (a) CH₃ – CH₃
 - (b) CH₃ – C ≡ CH
 - (c) CH₃ – CH₂ – CH₂ – OH
 - (d) CH₂ = CH₂
9. **A yellow precipitate is formed when I₂ in KI solution and NaOH solution is added to the small amount of an organic liquid in a test tube, and heated. What is this test and what group is being detected?**
 - (a) Cannizzaro reaction and benzaldehyde
 - (b) Fehling's solution and aldehyde group
 - (c) Iodoform test and ketone group
 - (d) Litmus test and carboxyl group
10. **What type of precipitate will be obtained when phenol reacts with bromine water?**
 - (a) Slight precipitate of 2, 4, 6 tribromophenol
 - (b) Violet color of diferric hexaphenate
 - (c) White crystals of sodium phenoxide (C₆H₅ONa)
 - (d) Colorless benzene diazonium sulfate salt
11. **To produce evil-odored acrolein —**
 - (a) Glycerine is heated with KHSO₄/P₂O₅
 - (b) Ethanal is heated with Cu(OH)₂
 - (c) Allyl alcohol is heated with chlorine
 - (d) Through hydrolysis of oils and fats
12. **What type of test is carried out to detect primary amine?**
 - (a) Liebermann test
 - (b) Through formation of quaternary ammonium salt
 - (c) Lucas reagent test
 - (d) Carbylamine and nitrous acid test

13. Which one is correct with respect to chromatography?

- (a) More than one mobile phase should be present.
- (b) No need for stationary phase
- (c) Two mobile phases and stationary phases should be present.
- (d) At least one mobile phase and one stationary phase should be present.

14. Which element shows catenation property?

- (a) chlorine (b) nitrogen
- (c) carbon (d) oxygen

15. Which one is the strongest reducing agent?

- (a) Fe (b) Al
- (c) Li (d) Zn

16. ✪ Benefits of nanotechnology are —

- i. ductility of matters increases
- ii. stability & strength of matters increase
- iii. mass of matters increase & they became heavier.

Which one is correct?

- (a) ii (b) i and iii
- (c) ii and iii (d) iii

17. Phenol is used as raw material to prepare salicylic acid nowadays. What is the name of the method?

- (a) Reimer–Tiemana
- (b) Friedel–Crafts reaction
- (c) Williamson reaction
- (d) Kolb–Schmidt reaction

18. The indicator used during the titration of strong acid and weak base

- (a) Thymol blue
- (b) Phenolphthalein
- (c) Methyl orange
- (d) Phenolphthalein and methyl red

19. Which one is the correct formula of green vitriol?

- (a) Mixture of iron (II) sulfate and iron sulphide

(b) Copper (II) sulfate and 5 molecules of water.

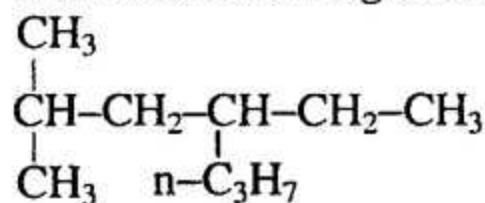
(c) Cabalt (II) sulfate and 7 molecules of water.

(d) Iron (II) sulfate with 7 molecules of water.

20. ✪ What is the pH of 0.001 M HCl acid solution?

- (a) 3.10 (b) 2.97
- (c) 2.07 (d) 3.00

Answer the questions 21, 22 and 23 from the following stem?



21. What is the name of the compound?

- (a) 1,1-Dimethyl-3-n-propyl pentane
- (b) 2-Methyl-4-n-propylhexane
- (c) 4-Ethyl-6-methylheptane
- (d) 2-Methyl-4-methylheptane

22. How many secondary carbons are there in the compound?

- (a) 2 (b) 3
- (c) 4 (d) 5

23. The compound —

- i. gives substitution reaction
- ii. gives Bayer test
- iii. it has one chiral carbon.

Which one is correct?

- (a) i and ii (b) i and iii
- (c) ii and iii (d) i, ii and iii

24. ✪ Used as cooking liquor —

- (a) NaOH, Na₂S and Na₂CO₃
- (b) NaHSO₄, Na₂CO₃
- (c) K₂SO₄, Na₂S, NaOH
- (d) H₂SO₃, Na₂CO₃

25. What is the correct concentration of 10% Na₂CO₃ solution?

- (a) 0.00943M (b) 0.0943M
- (c) 0.9430M (d) 9.4310M

Ans.

1	(a)	2	(b)	3	(d)	4	(c)	5	(b)	6	(c)	7	(a)	8	(d)	9	(c)	10	(a)	11	(a)	12	(d)	13	(d)
14	(c)	15	(c)	16	(a)	17	(d)	18	(c)	19	(d)	20	(d)	21	(b)	22	(a)	23	(b)	24	(a)	25	(c)		