



CHEMISTRY

BOOKS - ARIHANT PUBLICATION

PHENOLS

Questions For Practice Multiple Choice Type Questions

1. Cumene process is the most important commercial method for the manufacture of phenol. Cumene is

A. 1-methyl ethyl benzene

B. ethyl benzene

C. vinyl benzene

D. propyl benzene

Answer: A



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2. Treatment of phenol with Br_2 / H_2O yields

A. o-bromophenol

B. p-bromophenol

C. 2,4,6-tribromophenol

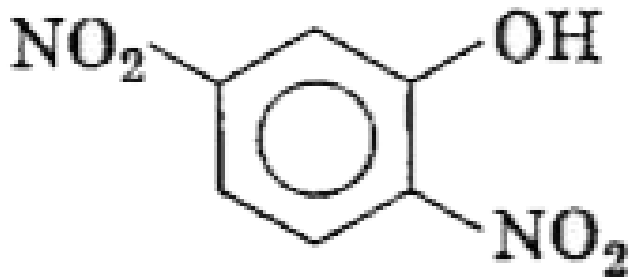
D. m-bromophenol

Answer:

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Questions For Practice Very Short Answer Type Questions

1. Write the IUPAC name of the given compound.



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2. You are given benzene, conc. H_2SO_4 and NaOH.

Write the equations for the preparation of phenol using these reagents.

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3. How can you prepare phenol from chlorobenzene ?

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4. What happens when benzene diazonium chloride is heated with water?

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5. Phenol is acidic because ___ is more stable than ___

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6. o-nitrophenol has lower boiling point than p-nitrophenol. Explain.

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7. Which explains that O- nitrophenol is more volatile than p- nitrophenol:

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8. Give reasons: Why phenol being an acid does not react with Sodium bicarbonate solution.

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9. Electrophilic substitution in phenol takes place at _____ position.

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10. Write the equation involved in the acetylation of salicylic acid.

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11. In Kolbe's reaction instead of phenol, phenoxide ion is treated with CO_2 . Why?



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12. Phenol on oxidation with air gives



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Questions For Practice Short Answer Type 1 Questions

1. Give the structures and IUPAC names of monohydric phenols of molecular formula, C_7H_8O .

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2. How can you convert benzene to phenol?

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3. How is phenol prepared? Give equation.

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4. Arrange the following compounds in the increasing order of acidity and give a suitable explanation.

Phenol, o-nitrophenol, o-cresol.

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5. Ortho and para-nitrophenols are more acidic than phenol. Draw the resonance structures of the corresponding phenoxide ions.

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6. Explain why p-nitrophenol is more acidic than phenol?

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7. What happens when phenol is treated with chloroform and dilute alkali solution?

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8. What is Reimer-Tiemann reaction?

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9. Explain why phenol is acidic while C_2H_5OH is neutral?

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10. How will you convert phenol to 2,4,6-tribromophenol?

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11. Suggest two tests to distinguish between ethanol and phenol.

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12. What is Reimer-Tiemann reaction?

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Questions For Practice Short Answer Type II Questions

1. Explain why is ortho-nitrophenol more acidic than ortho-methoxyphenol?

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2. (i) How can you prepare phenol from chlorobenzene?

(ii) What happens when phenol is heated with zinc dust?

(iii) Write the coupling reaction of BDG with phenol.

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Questions For Practice Long Answer Type Questions

1. (i) How will you convert phenol to benzoic acid?

(ii) An organic compound A having molecular formula, C_6H_6O gives a characteristic colour with aqueous

$FeCl_3$ solution.

A on treatment with CO_2 and NaOH at 400 K under pressure gives B which on acidification gives a compound C. The compound C reacts with acetyl chloride to give D which is a popular pain killer. Deduce the structure of A, B, C and D.

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2. What is Reimer-Tiemann reaction?

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3. How is phenol obtained from benzene ? Explain the acidic character of phenol



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Odisha Bureau S Textbook Solutions A Multiple Choice Type Questions

1. When phenol is heated with zinc dust, the product is

A. toluene

B. benzene

C. xylene

D. None of these

Answer: B



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2. Phenol is less acidic than:

A. acetic acid

B. p-methoxy phenol

C. o-nitrophenol

D. ethanol

Answer: A::C::D

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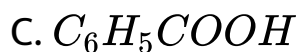
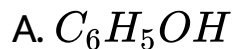
3. Electrophilic substitution in phenol takes place at _____ position.

- A. o-position only
- B. p-position only
- C. o- and p-position
- D. m-position only

Answer: C

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4. Sodium salt of benzene sulphonic acid on fusion with caustic soda gives:



D. None of these

Answer: A



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5. Phenol gives salicylaldehyde on heating with $CHCl_3$ and $NaOH$. The reaction is called:

- A. Cannizzaro's reaction
- B. Claisen condensation
- C. Reimer-Tiemann reaction
- D. Perkin reaction

Answer: C

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6. Chlorobenzene on heating with NaOH at high temperature and pressure gives

- A. phenol
- B. benzaldehyde

C. benzene

D. chlorophenol

Answer: A



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7. Phenol reacts with Br, in CS_2 , at low temperature to give

A. m-bromophenol

B. o- and p-bromophenol

C. p-bromophenol

D. 2,4,6-tribromophenol

Answer: B



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8. Intramolecular hydrogen bonding is found in

A. phenol

B. o-nitrophenol

C. p-nitrophenol

D. m-nitrophenol

Answer: B



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9. p- Nitrophenol is a stronger acid than phenol because nitro group is :

- A. electron donating
- B. electron withdrawing
- C. acidic
- D. basic

Answer: B



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10. The most convenient method of removing a phenolic group from a compound is by

- A. reduction with Sn + HCl
- B. heating strongly
- C. heating strongly with copper
- D. distilling with zinc dust

Answer: D



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1. Phenol is acidic because ___ is more stable than ___



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2. Formylation of phenol is reaction.



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3. Benzene can be obtained by heating phenol with

.....



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4. Phenol reacts with to give o- and p-nitrophenols.

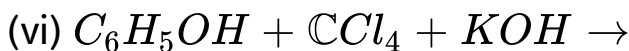
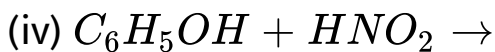
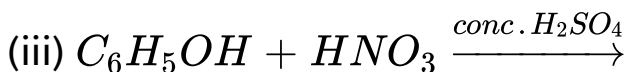
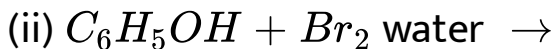
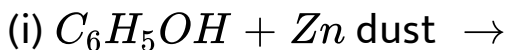
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5. Phenol gives with CrO_2Cl_2

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Odisha Bureau S Textbook Solutions C Short Answer Type
I Questions

1. Complete the following reaction giving the names of the products:



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2. Give the resonating structures for phenol and phenolate ion.

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3. How will you distinguish between ethyl alcohol and phenol.

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4. Give the reaction of phenol with benzene diazonium chloride.

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5. How will you obtain the following from phenol.

(i) Salicylaldehyde (ii) Benzene

(iii) Picric acid (iv) Nitrophenol

(v) Salicylic acid (vi) p-cresol



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Odisha Bureau S Textbook Solutions D Short Answer Type II Questions

1. What is Dow's process?



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2. What is Reimer-Tiemann reaction?

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3. Explain, why phenol is acidic, while ethyl alcohol is neutral.

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4. How can you carry nitration in phenol? Explain.

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5. What is the directive influence of phenolic group?

Explain with reasons.



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Odisha Bureau S Textbook Solutions E Long Answer Type II Questions

1. How is phenol prepared from benzene? How can phenol be converted to

(i) benzene (ii) salicylaldehyde?



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2. Convert phenol to aspirin and p-benzoquinone ?

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3. Starting from benzene diazonium chloride, how can phenol be prepared ? How can phenol be sulphonated ? What is the electrophile for this reaction?

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Chapter Practice Multiple Choice Type Questions

1. By heating phenol and chloroform in alkali, it is converted into

- A. salicylic acid
- B. salicylaldehyde
- C. anisole
- D. phenyl benzoate

Answer: B



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2. Phenol is soluble in water because

- A. of weak hydrogen bonding between phenol and water molecules
- B. of intermolecular hydrogen bonding between phenol molecules
- C. it has a higher boiling point than that of water
- D. None of the above

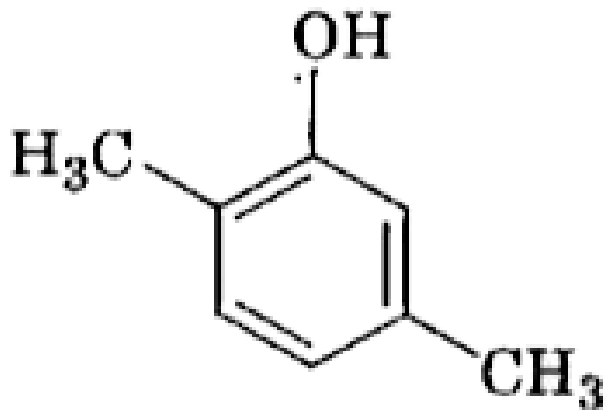
Answer: A



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Chapter Practice Very Short Answer Type Questions

1. Give the IUPAC name of the following compound.

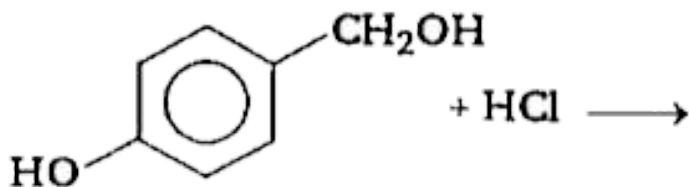


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2. Which explains that O- nitrophenol is more volatile than p- nitrophenol:

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3. What is the product of the following reaction?



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Chapter Practice Short Answer Type I Questions

1. Give the peculiar features for the phenol structure.

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2. Give reason:

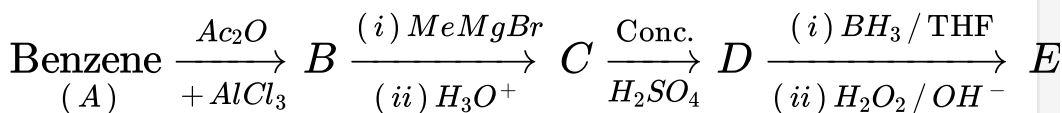
Phenols boil at higher temperature than arenes of comparable molecular mass:

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Chapter Practice Short Answer Type II Questions

1. (i) Give reason why phenol does not give protonation easily.

(ii) Complete the following reaction.



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2. (i) Phenol is more acidic than methanol. Give reason.

(ii) Convert the following

(a) Phenol to p-benzoquinone

(b) Aniline to phenol



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Chapter Practice Long Answer Type Questions

1. (i) Explain with reason:

(a) Presence of electron withdrawing group increases the acidic character of phenol.

(b) Solubility of alcohols in water decreases with increase in molecular mass.

(c) Phenol is more acidic than ethanol.

(ii) How would you obtain

(a) picric acid from phenol?

(b) 2-methyl propanol from 2-methyl propene?



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