
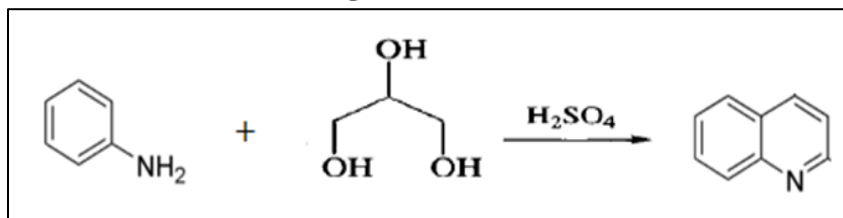
	TANTA UNIVERSITY FACULTY OF PHARMACY DEPARTMENT OF PHARMACEUTICAL CHEMISTRY			
	FINAL EXAM FOR SECOND LEVEL (PHARM D) STUDENTS			
COURSE TITLE:	Pharmaceutical Organic Chemistry III		COURSE CODE: PC 303	
DATE:	28/02/2021	FIRST SEMESTER:	TOTAL ASSESSMENT MARKS: 50	TIME ALLOWED: 120 MINUTES

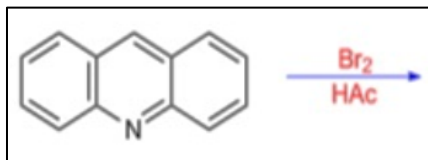
This exam booklet contains 12 pages and 34 MCQ questions (1.5 marks each). Fill the separate answer sheet using blue pen only for electronic correction machine.

1. What is the name of the following reaction?



- a- Hantzsch reaction.
- b- Fischer synthesis.
- c- Skraup synthesis.
- d- Reimer Tiemann reaction

2. What is the product obtained from the following reaction?

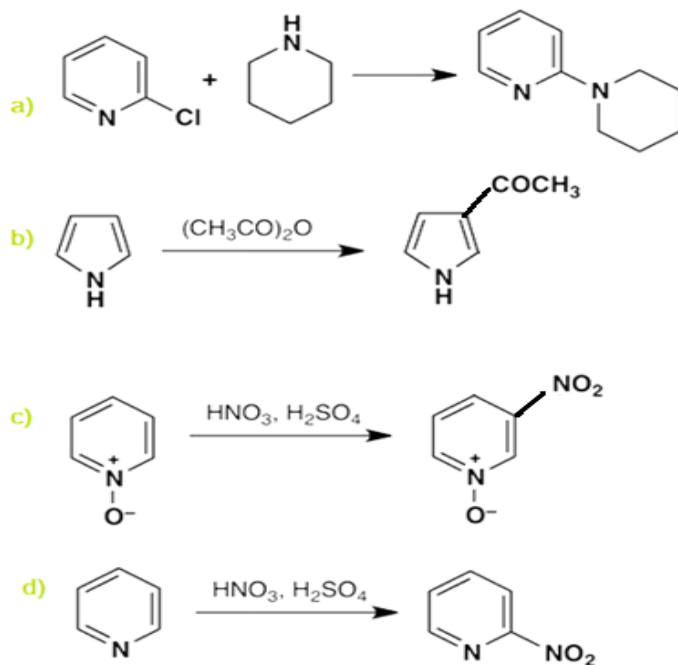


- a- 2-Bromoacridine.
- b- 3- Bromoacridine.
- c- 2,7-Dibromoacridine.
- d- a and c.

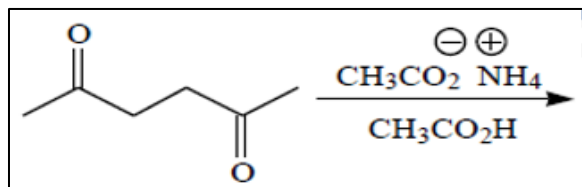
3. Which is more acidic:

- a- 2-Hydroxypyridine.
- b- Cyclohexanol.
- c- 3-Hydroxypyridine.
- d- b and c.

4. Which of the following reactions gives the corrected product?

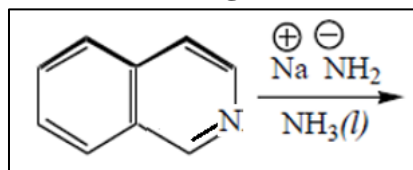


5. What the name of the product obtained from the following reaction?



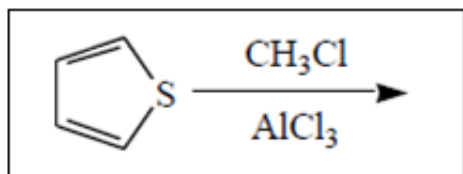
- a- Imidazole derivative.
- b- Pyrrole derivative.
- c- Pyridine derivative.
- d- Pyridazine derivative.

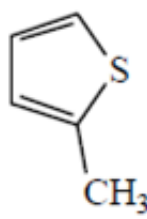
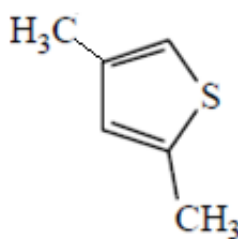
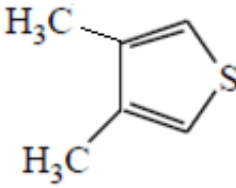
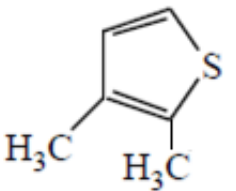
6. What the major product of the following reaction?



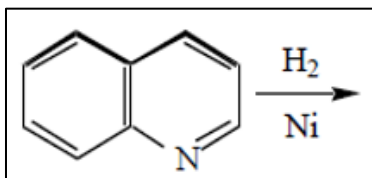
- a- 2-Amino isoquinoline.
- b- 1-Amino isoquinoline.
- c- 4-Amino isoquinoline.
- d- 8-Amino isoquinoline.

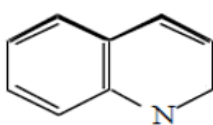
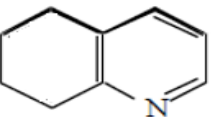
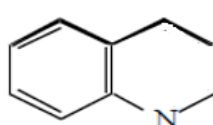
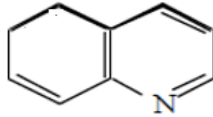
7. Pick the major product in the following reaction.



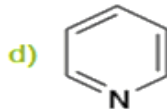
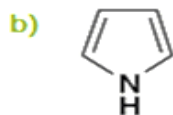
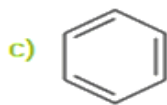
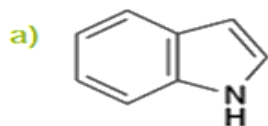
- a) 
- b) 
- c) 
- d) 

8. What the product of the following reaction?

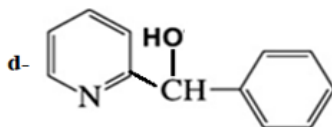
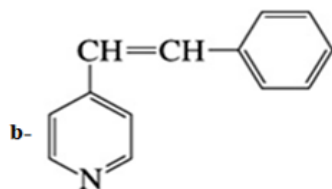
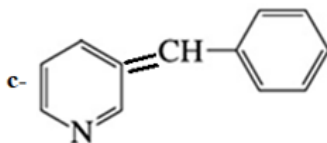
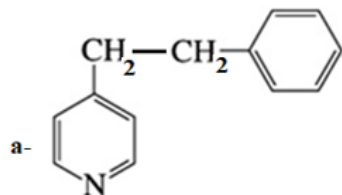
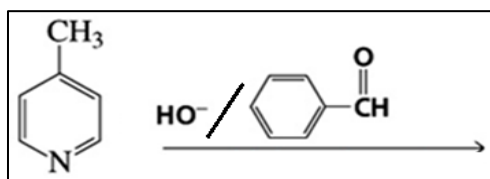


- a- 
- b- 
- c- 
- d- 

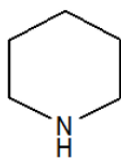
9. Which is least reactive towards an electrophile?



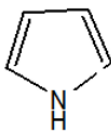
10. Pick the major product in the following reaction



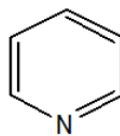
11. The decreasing order of basicity the following compounds is:



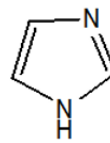
a



b



c



d

a- I > III > II > IV

b- I > IV > II > III

c- I > IV > III > II

d- I > II > III > IV

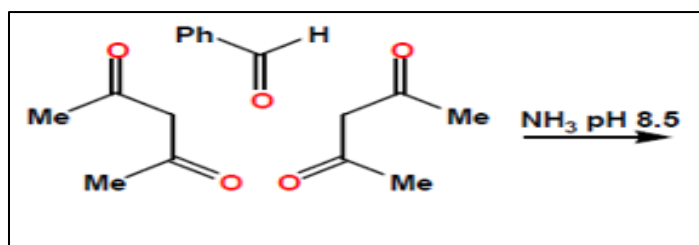
12. In the polymerization of pyrrole accept proton at:

- a- Carbon No. 2
- b- Carbon No. 3
- c- Carbon No. 4
- d- Nitrogen atom

13. In nucleophilic substitution reaction the reactivity of

- a- 2-Chloropyridine is equally reactive with pyridine.
- b- Pyridine is less reactive than 2-chloropyridine.
- c- 2-Chloropyridine is more reactive than pyridine.
- d- a and b.

14. The name of the following reaction is:



- a- Hantzsch reaction.
- b- Paal-Knorr pyrrole synthesis.
- c- Chichibabin reaction.
- d- Reimer Tiemann reaction

15. pKa of the following compounds/ions decrease in the given order:

- a. anilinium ion > cyclohexylaminium ion > N protonated benzamide > ethanol > H₂O.
- b. H₂O > ethanol > cyclohexylaminium ion > N protonated benzamide > anilinium ion.
- c. ethanol > H₂O > cyclohexylaminium ion > anilinium ion > N protonated benzamide.
- d. none of these.

16. The acidity of the following compounds decreases in the given order:

- a. H₂O > t-butanol > acetone > benzoic acid > ethyl acetoacetate.
- b. benzoic acid > H₂O > t-butanol > ethyl acetoacetate > acetone.
- c. ethyl acetoacetate > acetone > benzoic acid > H₂O > t-butanol.

d. none of these.

17. The reductive amination of aldehyde or ketone for synthesis of amines has the advantage that:

a. no possibility for polyalkylation of the amine.

b. inexpensive starting materials

c. the formation of the stable intermediate hemiaminal.

d. none of these.

18. The mechanism of Hoffman degradation for preparation of amines involves the formation of the intermediate(s):

a. only N-bromoamide

b. only isocyanate

c. only carbamate

d. none of these.

19. Dicyclohexylcarbodiimide (DCC) promotes synthesis of amides via:

a. activation of the amine towards electrophilic attack

b. activation of the carboxylic acid towards nucleophilic attack.

c. formation of the stable compound urea.

d. none of these

20. Trihalomethyl carbanion is involved in:

a. acid chloride formation

b. alkylation of ketones

c. α -halogenation of carboxylic acids

d. none of these

21. For direct α -alkylation of esters, we can use as a base:

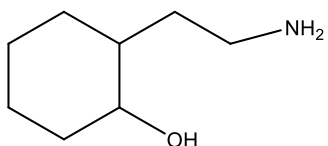
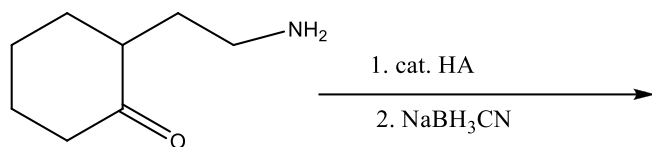
a. LDA

b. OC_2H_5^- , $\text{C}_2\text{H}_5\text{OH}$

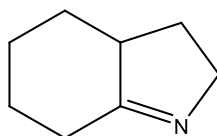
c. $\text{CH}_3\text{COO}^- \text{Na}^+$, CH_3COOH

d. none of these

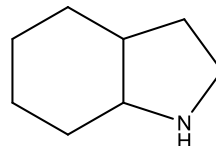
22. Choose the organic product of the following reaction?



A



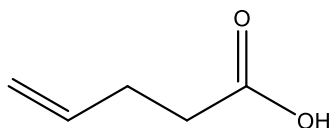
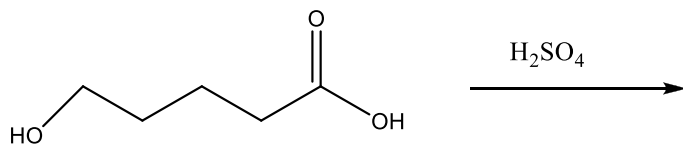
B



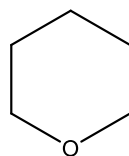
C

D. None of these structures

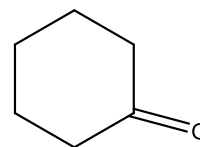
23. Choose the organic product of the following reaction?



A



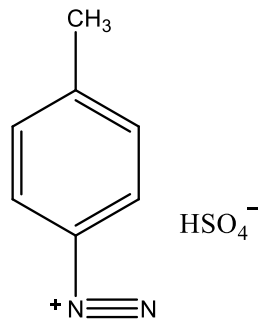
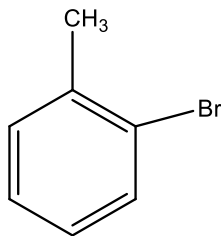
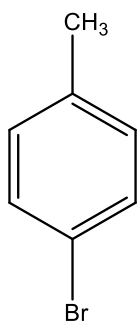
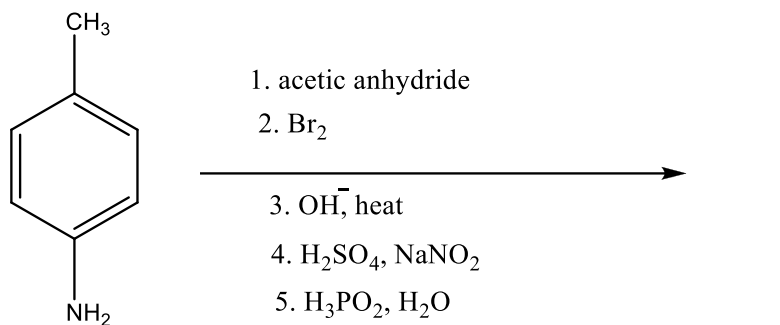
B



C

D. None of these structures

24. Choose the organic product of the following reaction?



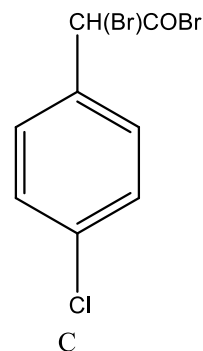
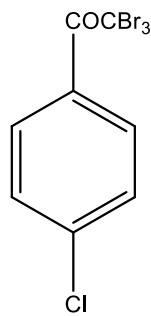
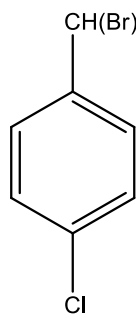
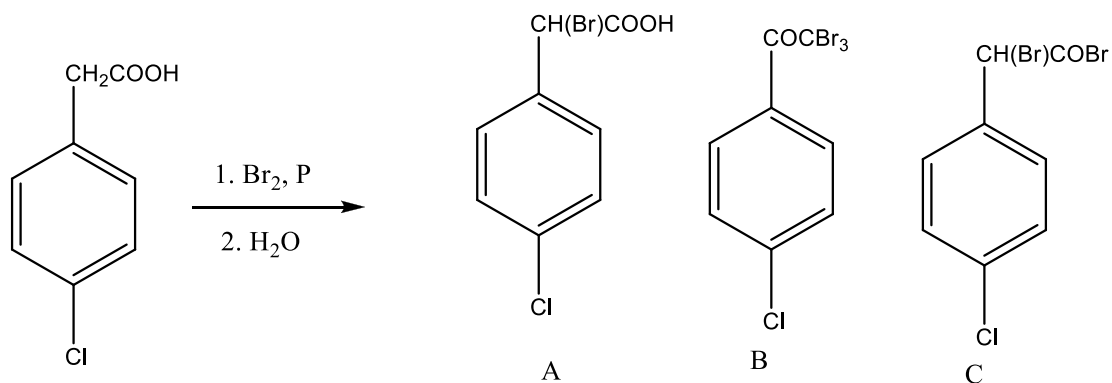
A

B

C

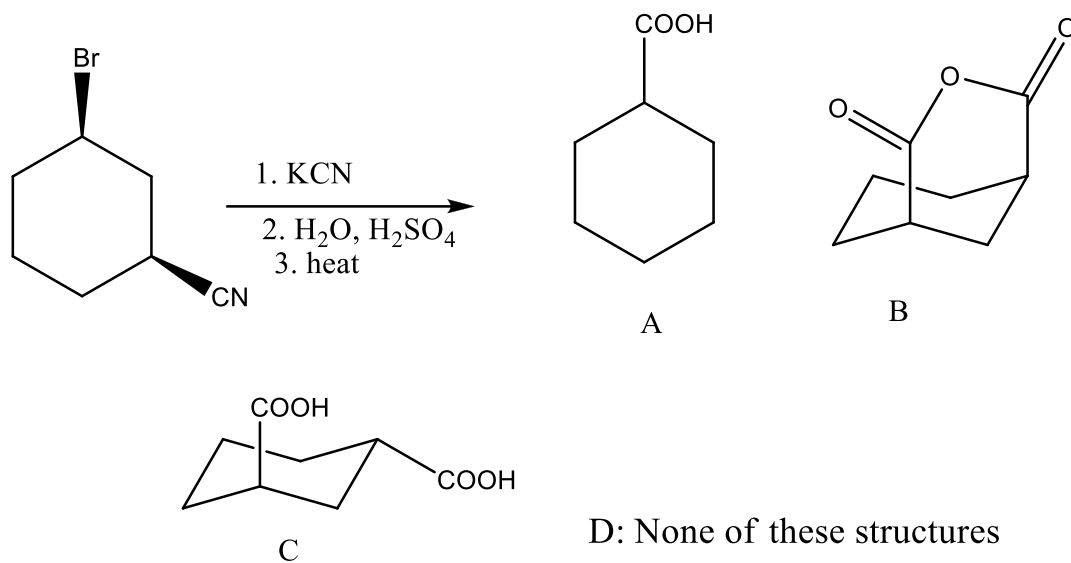
D: None of these structures.

25. Choose the organic product of the following reaction?

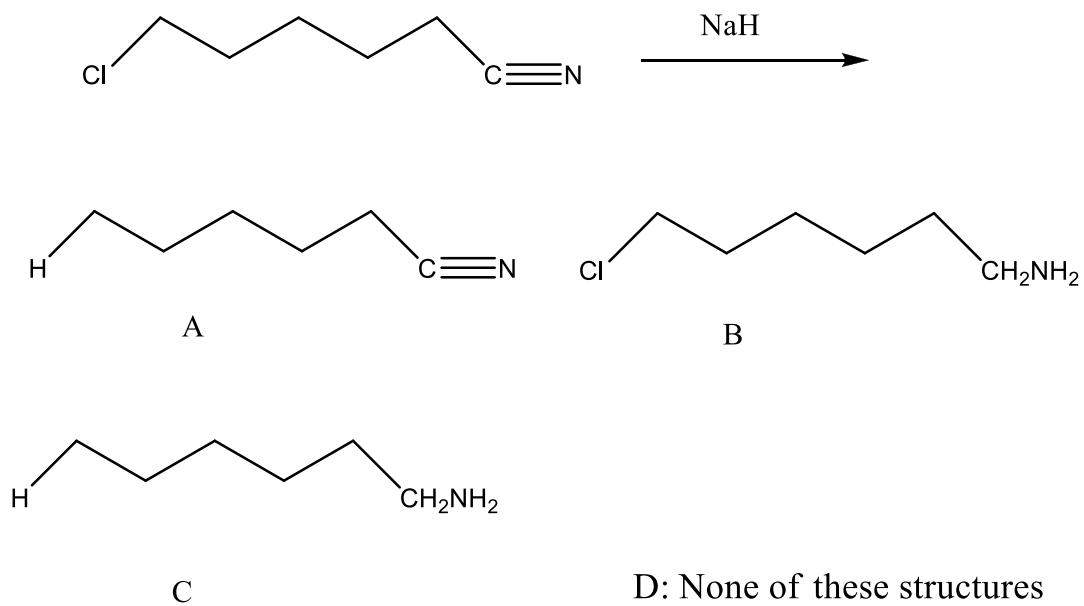


D: None of these structures

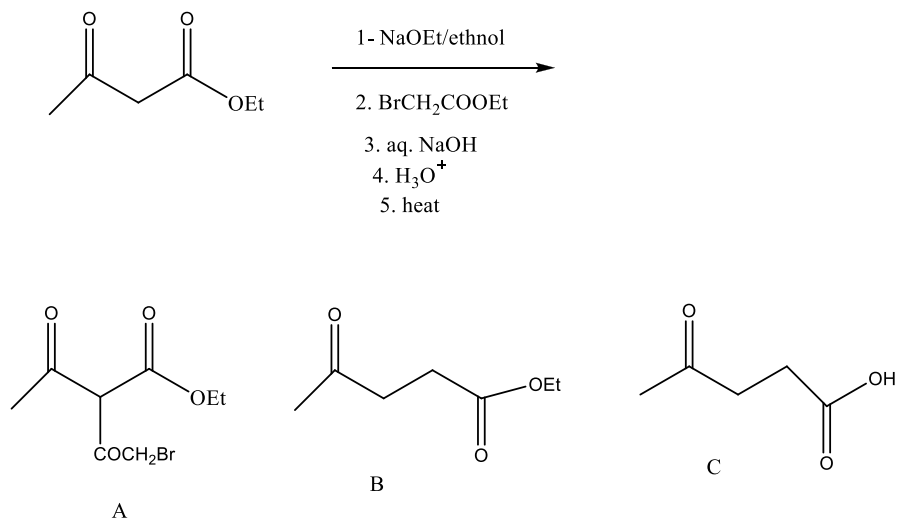
26. Choose the organic product of the following reaction?



27. Choose the organic product of the following reaction?

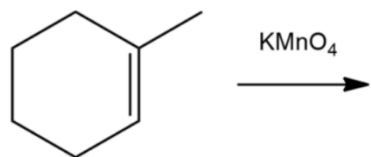


28. Choose the organic product of the following reaction?



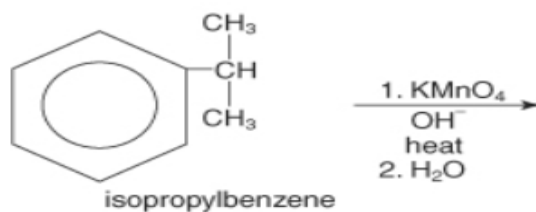
D: None of these structures

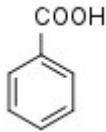
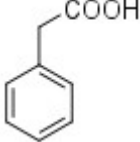
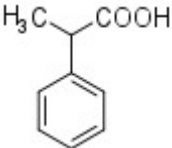
29. What the product of the following reaction?



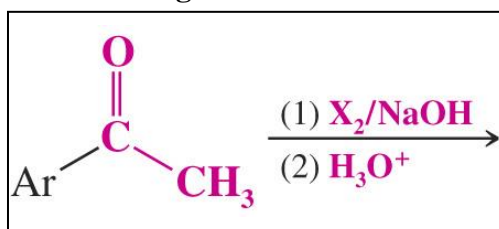
A.		B.	
C.		D.	

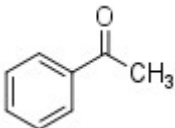
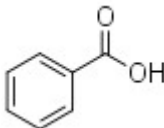
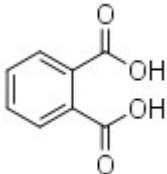
30. What the product of the following reaction?



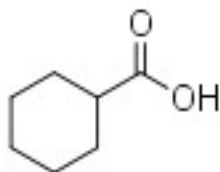
A.		B.	
C.		D.	No reaction

31. What the product of the following reaction?



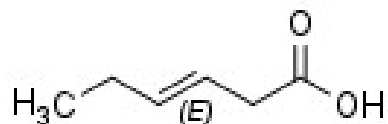
A.		B.	
C.		D.	No reaction

32. What the IUPAC name of the following product?



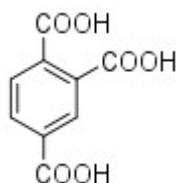
A.	Cyclohexane carboxylic acid	B.	Cyclopentane carboxylic acid
C.	Benzene carboxylic acid	D.	Benzene carboxaldehyde

33. What the IUPAC name of the following product?



A.	Hex-3-enoic acid	B.	Hex-3-anoic acid
C.	Hept-3-enoic acid	D.	Hept-3-anoic acid

34. What the IUPAC name of the following product?



A.	Benzene-1,1,1-tricarboxylic acid	B.	Benzene-2,3,4-tricarboxylic acid
C.	Benzene-1,2,4-tricarboxylic acid	D.	Benzene-1,2,3-tricarboxylic acid