



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 49

Chemistry

1. An element X has the following isotopic composition:

$^{200}\text{X} : 90\%$ $^{199}\text{X} : 8.0\%$ $^{202}\text{X} : 2.0\%$

The weight average atomic mass of the naturally occurring element X is closest to

A. 204 amu

B. 198 amu

C. 197 amu

D. 200 amu

Answer: D



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2. The position of both , an electron and a helium atom is known within 1.0 nm. Further the momentum

of the electron is known within $5.0 \times 10^{-26} \text{kgms}^{-1}$

The minimum uncertainty in the measurement of the momentum of the helium atom is

A. $6.0 \times 10^{-26} \text{kgms}^{-1}$

B. 60kgms^{-1}

C. 50kgms^{-1}

D. $5.0 \times 10^{-26} \text{kgms}^{-1}$

Answer: D



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3. In which of the following options the order arrangement does not agree with the variation of property indicated against it?

A. $I < Br < F < Cl$ (increasing magnitude of electron gain enthalpy)

B. $Li < Na < K < Rb$ (increasing metallic radius)

C. $Al^{3+} < Mg^{2+} < Na^{+} < F$ (order of ionic radius)

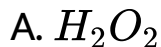
D. $B < C < N < O$ (increasing first ionization enthalpy)

Answer: D



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4. Which one of the following compounds shows the presence of intramolecular hydrogen bond ?



C. Cellulose

D. Concentrated acetic acid

Answer: C



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5. For real gases, van der Waals' equation is written as

$$\left(P + \frac{an^2}{V^2}\right)(V - nb) = nRT$$

where a and b are van der Waals' constants.

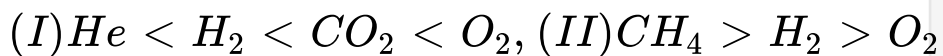
Two sets of gases are:

(I) O_2, CO_2, H_2 and He (II) CH_4, O_2 and

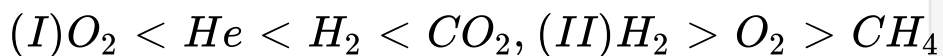
O_2 and H_2

The gases given in set I in increasing order of b and gases given in set II in decreasing order of a are arranged below. Select the correct order from the following:

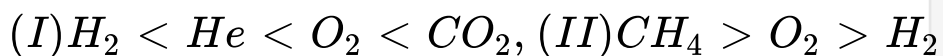
A.



B.



C.



D.



Answer: C



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6. If $C(s) + O_2(g) \rightarrow CO_2(g), \Delta H = X$ and $CO(g) + 1/2O_2(g) \rightarrow CO_2(g), \Delta H = Y$, then the heat of formation of CO is

A. $X - Y$

B. $Y - 2X$

C. $X + Y$

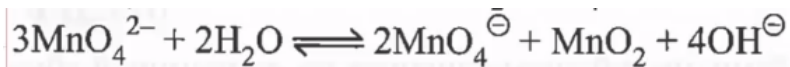
D. $2X - Y$

Answer: A



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7. $KMnO_4$ can be prepared from K_2MnO_4 as per the reaction:



The reaction can go to completion by removing OH^- ions by adding.

A. CO_2

B. SO_2

C. HCl

D. KOH

Answer: A



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8. Setting of plaster of paris is

A. Dehydration

B. Oxidation with atmospheric oxygen

C. Combination with atmospheric CO_2

D. Hydration to yield another hydrate

Answer: D



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9. Some statements about heavy water are given below :

(i) Heavy water is used as a moderator in nuclear reactors

(ii) Heavy water is more associated than ordinary water.

(iii) Heavy water is more effective solvent than ordinary water

Which of the above statements are correct ?

A. (i) and (ii)

B. (i) , (ii) and (iii)

C. (ii) and (iii)

D. (i) and (iii)

Answer: A



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10. Which of the following statements is false ?

A. Ca^{2+} ions are not important in maintaining the regular beating of the heart.

B. Mg^{2+} ions are ions are important in the green parts of the plants .

C. Mg^{2+} ions form a complex with ATP.

D. Ca^+ ions are important in blood clotting

Answer: A



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11. which statement is wrong ?

A. Beryl is an example of cyclic silicate

B. Mg_2SiO_4 is orthosilicate

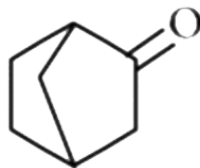
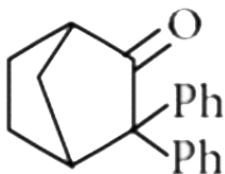
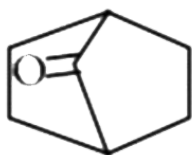
C. Basic structural unit in silicates is the SiO_4^{4-}
tetrahedron

D. Feldspars are not aluminosilicates

Answer: D

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12. Which among the given molecules can exhibit tautomerism?



A. III only

B. Both I and II

C. Both I and III

D. Both II and III

Answer: A



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13. A dilute aqueous solution of Na_2SO_4 is electrolyzed using platinum electrodes. The products at the anode and cathode are :

A. O_2, H_2

B. $S_2O_8^{2-}, Na$

C. O_2, Na

D. $S_2O_8^{2-}, H_2$

Answer: A



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14. Which one of the following statements is not true ?

- A. pH of drinking water should be between 5.5-9.5
- B. Concentration of DO below 6 ppm is good for the growth of fish
- C. Clean water would have a BOD value of less than 5 ppm

D. Oxides of sulphur, nitrogen and carbon, are the most wider spread air pollutant

Answer: B



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15. If $NaCl$ is doped with $10^{-4} mol\%$ of $SrCl_2$ the concentration of cation vacancies will be ($N_A = 6.02 \times 10^{23} mol^{-1}$)

A. $6.02 \times 10^{16} mol^{-1}$

B. $6.02 \times 10^{17} mol^{-1}$

C. $6.02 \times 10^{14} mol^{-1}$

$$D. 6.02 \times 10^{15} \text{ mol}^{-1}$$

Answer: B



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16. Blood cells retain their normal shape in solution which are

- A. hypotonic to blood
- B. isotonic to blood
- C. hypertonic to blood
- D. equinormal to blood

Answer: B



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17. Consider the following relations for *emf* of a electrochemical cell

(i) $\text{emf of cell} = (\text{Oxidation potential of anode}) - (\text{Reduction potential of cathode})$

(ii) $\text{emf of cell} = (\text{Oxidation potential of anode}) + (\text{Reduction potential of cathode})$

(iii) $\text{emf of cell} = (\text{Reduction potential of anode}) + (\text{Reduction potential of cathode})$

(iv) $\text{emf of cell} = (\text{Oxidation potential of anode}) -$

(Oxidation potential of cathode)

Which of the above reactions are correct?

A. (iii) and (i)

B. (i) and (ii)

C. (iii) and (iv)

D. (ii) and (iv)

Answer: D



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18. For a zero order reaction $[R]_0$ is the initial concentration

A. $t_{1/2} \propto R_0$

B. $t_{1/2} \propto 1/R_0$

C. $t_{1/2} \propto R_0^2$

D. $t_{1/2} \propto 1/R_0^2$

Answer: A



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19. Which one of the following forms micelles in aqueous solution above certain concentration?

A. Dodecyl trimethyl ammonium chloride

B. Glucose

C. Urea

D. Pyridinium chloride

Answer: A



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20. The most abundant metal in the earth crust is

A. Na

B. Mg

C. Al

D. Fe

Answer: C



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21. Which would quickly absorb oxygen?

A. Alkaline solution of pyrogallol

B. Conc . H_2SO_4

C. Lime water

D. Alkaline solution of $CuSO_4$

Answer: A



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22. Which of the following exhibits only +3 oxidation state?

A. U

B. Th

C. Ac

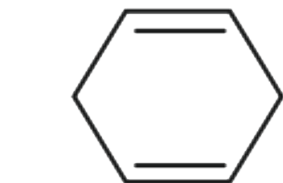
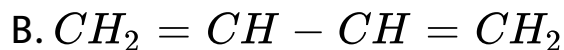
D. Pa

Answer: C

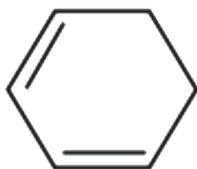


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23. Which of the following compound on oxidative ozonolysis give malonic acid as only product ?



C.

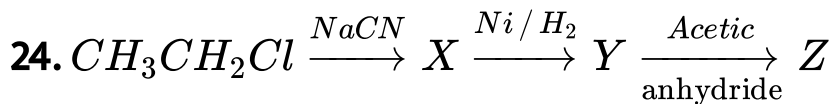


D.

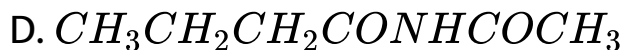
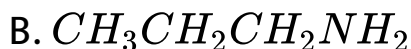
Answer: C



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Z in the above reaction sequence is .



Answer: A



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25. When 3,3 - dimethyl - 2 - butanol is heated with H_2SO_4 the major product obtained is

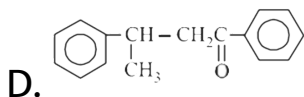
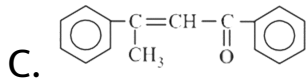
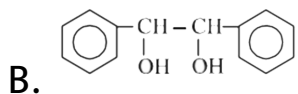
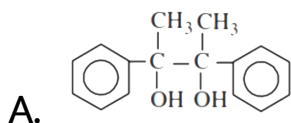
- A. 2,3 - dimethyl - 2 - butene
- B. cis and trans isomers of 2,3 - dimethyl - butene
- C. 2,3 - dimethyl - 1 - butene
- D. 3,3 - dimethyl - 1 - butene

Answer: A



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26. Acetophenone when reacted with a base, C_2H_5ONa , yields a stable compound which has the structure :

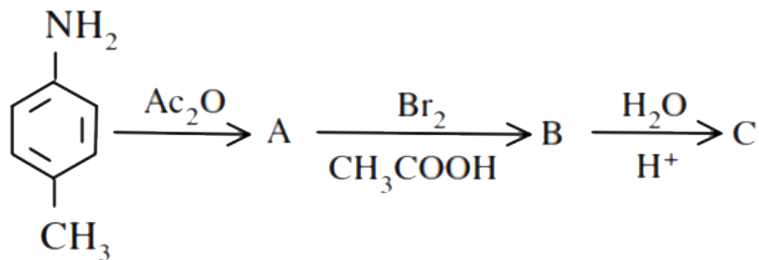


Answer: C

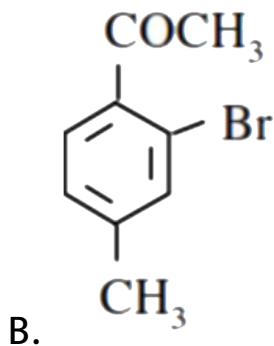
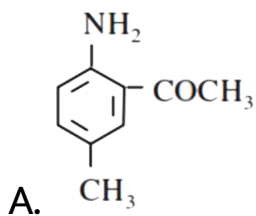


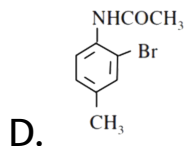
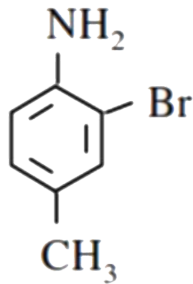
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27. The final product C , obtained in this reaction



Would be

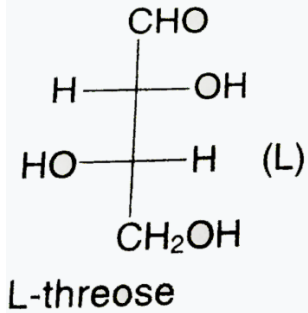
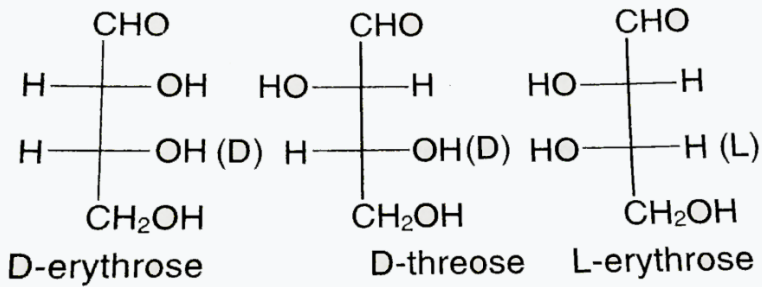




Answer: C

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28. The correct corresponding order of names of four aldoses with configuration given below



respectively, is

- A. L - erythrose , L- threose , L - erythrose , D - threose
- B. D - threose, D - erythrose , L - threose , L - erythrose

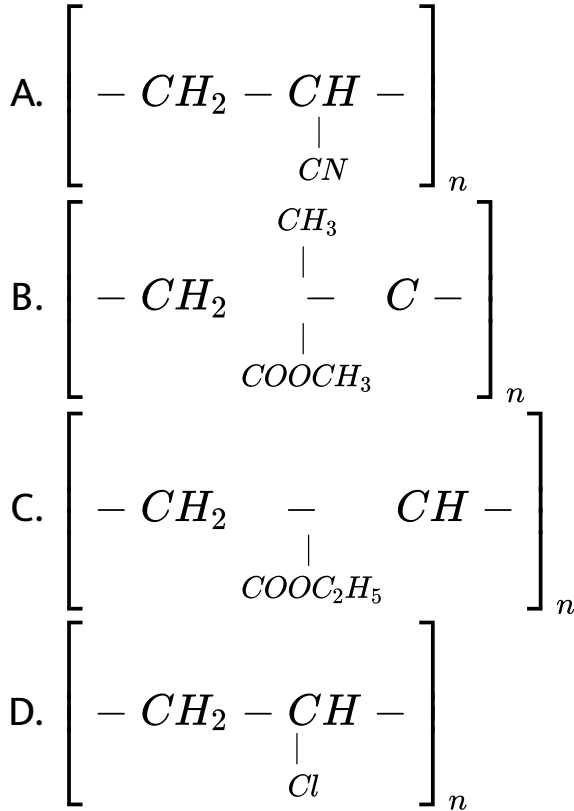
C. L - erythrose , L- thresose , D - erythrose , D -
threose

D. D - erythrose , D- thresose , L - erythrose , L -
threose

Answer: D

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29. Acrilan is a hard, horny and a high melting material. Which of the following represents its structures?



Answer: A



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30. The decomposition of organic compounds, in the presence of oxygen without the development of

odoriferous substances , is called

A. nitrification

B. N_2 - fixation

C. decay

D. denitrification

Answer: C



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31. The outer orbitals of C in ethene molecule can be considered to be hybridized to give three equivalent

sp^2 orbitals. The total number of sigma (σ) and pi (π) bonds in ethene molecule is

- A. 3 sigma (σ) and 2 pi (π) bonds
- B. 4 sigma (σ) and 1 pi (π) bonds
- C. 5 sigma (σ) and 1 pi (π) bonds
- D. 1 sigma (σ) and 2 pi (π) bonds

Answer: C



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32. Which of the following solutions will have the highest boiling point ?

A. 0.1 M $FeCl_3$

B. 0.1 M $BaCl_2$

C. 0.1 M $NaCl_3$

D. 0.1 M Urea

Answer: A



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33. In qualitative analysis, the metals of group I can be separated from other ions by precipitating them as chloride salts. A solution initially contains Ag^+ and Pb^+ at a concentration of 0.10M.

Aqueous HCl is added to this solution until the Cl^- concentration is 0.10M. What will be the concentration of Ag^+ and Pb^{2+} at equilibrium?

$$(K_{sp} \text{ for } AgCl = 1.8 \times 10^{-10})$$

$$(K_{sp} \text{ for } PbCl_2 = 1.7 \times 10^{-5})$$

A.

$$[Ag^+] = 1.8 \times 10^{-7} M, [Pb^{2+}] = 1.7 \times 10^{-6} M$$

B.

$$[Ag^+] = 1.8 \times 10^{-11} M, [Pb^{2+}] = 8.5 \times 10^{-5} M$$

C.

$$[Ag^+] = 1.8 \times 10^{-9} M, [Pb^{2+}] = 1.7 \times 10^{-3} M$$

D.

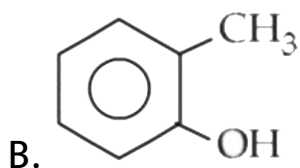
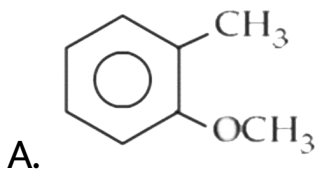
$$[Ag^+] = 1.8 \times 10^{-11} M, [Pb^{2+}] = 1.7 \times 10^{-4} M$$

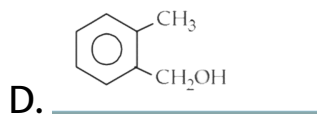
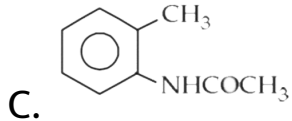
Answer: C



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34. Which one of the following is most reactive towards electrophilic reagent ?

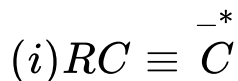




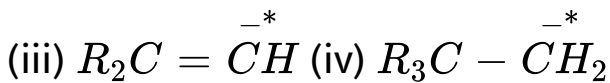
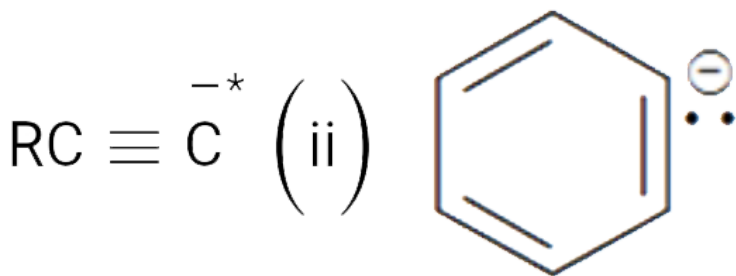
Answer: B

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35. The stability of carbanions in the following



(ii)



A. $(iv) > (ii) > (iii) > (i)$

B. $(i) > (iii) > (ii) > (iv)$

C. $(i) > (ii) > (iii) > (iv)$

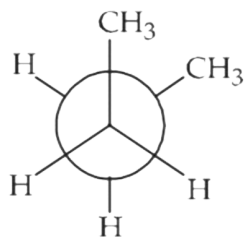
D. $(ii), (iii) > (iv) > (i)$

Answer: C

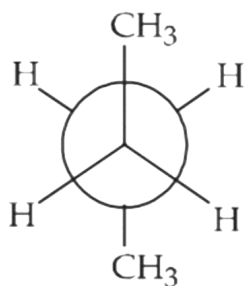


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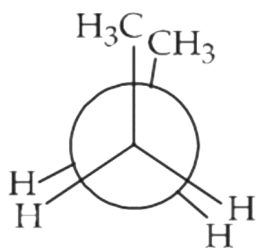
36. In the following the most stable configuration of n
-butane is



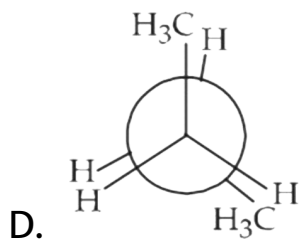
A.



B.



C.



Answer: B

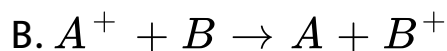
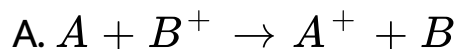


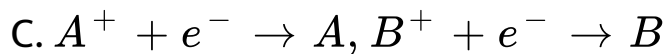
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37. A hypothetical electrochemical cell is shown below:



The emf measured is $+0.20V$. The cell reaction is





D. the cell reaction cannot be predicated

Answer: A



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38. Each of the following is true for white and red phosphorus except that they

A. are both soluble in CS_2

B. can be oxidized by heating in air

C. consist of the same kind of atoms

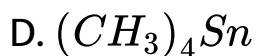
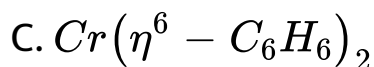
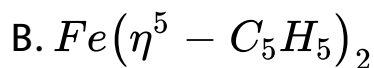
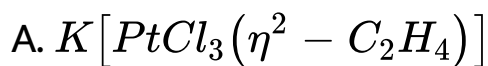
D. can be converted into one another

Answer: A



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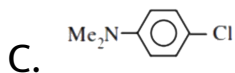
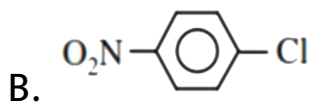
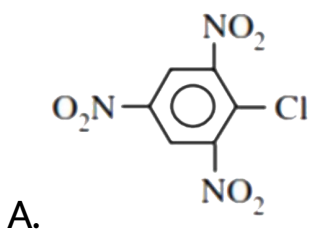
39. Among the following, which is not the π -bonded organometallic compound

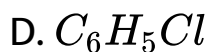


Answer: D

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40. Which chloroderivative of benzene among the following would undergo hydrolysis most readily with aqueous sodium hydroxide to furnish the corresponding hydroxyderivative ?





Answer: A



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41. Increasing order of acidic strength among p - methoxyphenol (*i*) p - methylphenol (*II*) and p - nitrophenol (*III*) is

A. p - nitrophenol , p - methoxyphenol , p - methylphenol

B. p - methylphenol , p - methoxyphenol , p - nitrophenol

C. p - nitrophenol , p - methoxyphenol , p - methoxyphenol

D. p - methoxyphenol , p - methylphenol , p - nitrophenol

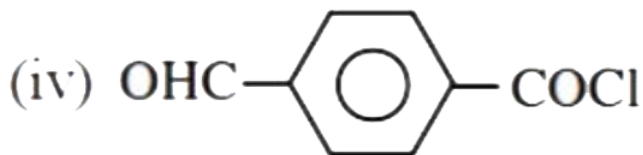
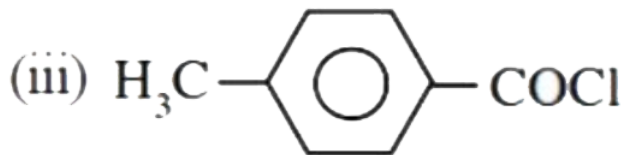
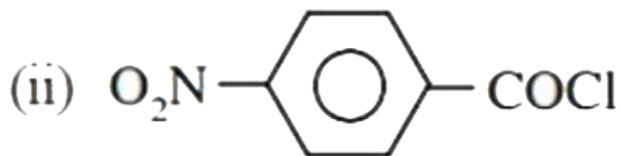
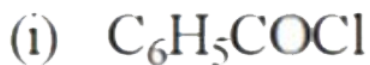
Answer: D



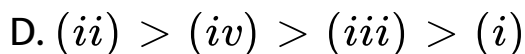
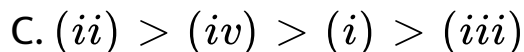
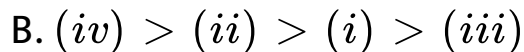
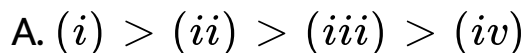
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42. Consider the following compounds

(i) C_6H_5COCl



The correct decreasing order of their reactivity towards hydrolysis is

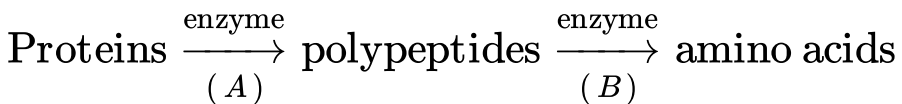


Answer: C



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43. During the process of digestion, the proteins present in food material are hydrolysed to amino acids. The two enzymes involved in the process are :



- A. invertase and zymase
- B. amylase and maltase
- C. diastase and lipase
- D. pepsin and trypsin

Answer: D



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44. Sodium and copper have work functions 2.3 eV and 4.6 eV respectively . Then the ratio of threshold wavelengths are respectively.

A. 2 : 1

B. 1 : 2

C. 4 : 1

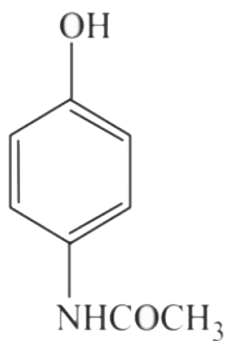
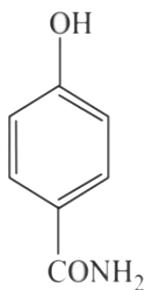
D. 1 : 4

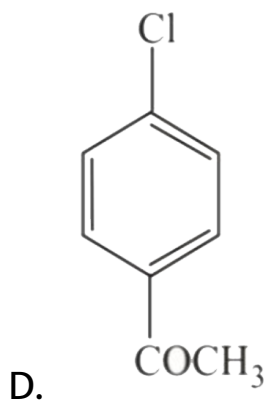
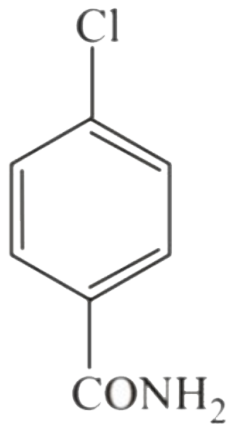
Answer: A



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45. The correct structure of the drug paracetamol is :





Answer: B



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