

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 44

Chemistry

1. The correct order of atomic radii in group 13 elements is



B. $B < Al < Ga < In < Tl$

C. $B < Al < In < Ga < Tl$

D. $B < Ga < Al < In < Tl$

Answer: D



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2. Regarding cross-linked or network polymers, which of the following statements is incorrect ?

A. Examples are bakelite and melamine .

B. They are formed from bi - and tri - functional monomers.

C. They contain covalent bonds between various linear polymer chains .

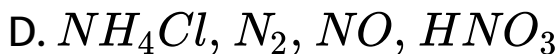
D. They contain weak covalents bonds in their polymer chains.

Answer: D



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3. The correct order of N-compounds, in its decreasing order of oxidation states is



Answer: C



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4. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4 . The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

A. 2.8

B. 3.0

C. 1.4

D. 4.4

Answer: A



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5. Which of the following oxides is least basic in nature ?

A. BaO

B. BeO

C. MgO

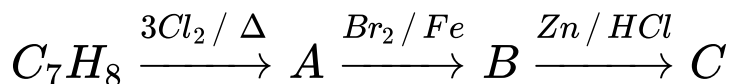
D. CaO

Answer: B



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6. The compound C_7H_8 undergoes the following reactions :



The product 'C' is

A. 3-bromo -2, 4 ,6 - trichlorotoluene

B. o - bromotoluene

C. m - bromotoluene

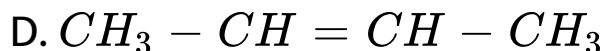
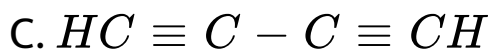
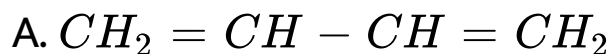
D. p - bromotoluene

Answer: C



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7. Which of the following molecules represents the order of hybridisation sp^2 , sp^2 , sp , sp from left to right atoms ?

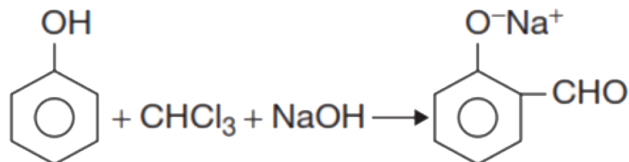


Answer: B

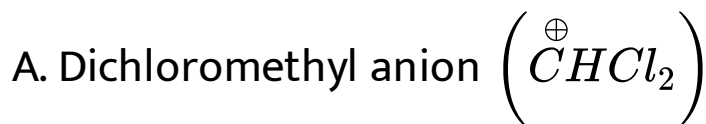
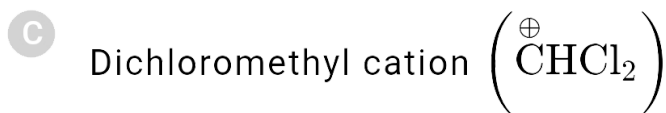
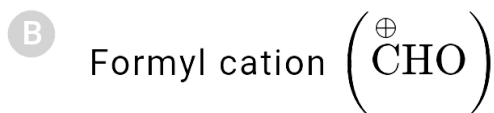
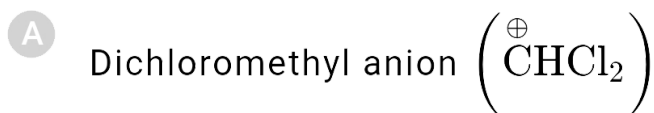


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8. In the reaction .



The electrophile involved is



C. Dichloromethyl cation $\left(\overset{\oplus}{C}HCl_2\right)$

D. Dichlorocarbene ($: CCl_2$)

Answer: D



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9. Match the metal ions given in column I with the spin magnetic moments of the ions given in

column II and assign the correct code

	Column I		Column II
1.	Co^{3+}	i.	$\sqrt{8}$ BM
2.	Cr^{3+}	ii.	$\sqrt{35}$ BM
3.	Fe^{3+}	iii.	$\sqrt{3}$ BM
4.	Ni^{2+}	iv.	$\sqrt{24}$ BM
		v.	$\sqrt{15}$ BM

A

1	2	3	4
iv	i	ii	iii

B

1	2	3	4
i	ii	iii	iv

A. 1 2 3 4
 iv *i* *ii* *iii*

B. 1 2 3 4
 i *ii* *iii* *iv*

C. 1 2 3 4
 iv *v* *ii* *i*

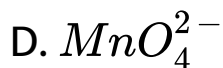
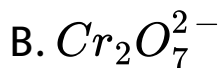
D. 1 2 3 4
 iii *v* *i* *ii*

Answer: C



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10. Which one of the following ions exhibits d-d transition and paramagnetism as well ?



Answer: D



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11. The geometry and magnetic behaviour of the complex $[Ni(CO)_4]$ are

- A. Square planer geometry and paramagnetic
- B. Tetrahedral geometry and diamagnetic
- C. Square planer geometry and diamagnetic
- D. Tetrahedral geometry and paramagnetic

Answer: B



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12. The solubility of $BaSO_4$ in water is $2.42 \times 10^{-3} gL^{-1}$ at $298K$. The value of its solubility product (K_{sp}) will be (Given molar mass of $BaSO_4 = 233 gmol^{-1}$)

A. $1.08 \times 10^{-14} mol^2 L^{-2}$

B. $1.08 \times 10^{-12} mol^2 L^{-2}$

C. $1.08 \times 10^{-10} mol^2 L^{-2}$

D. $1.08 \times 10^{-8} \text{ mol}^2 \text{ L}^{-2}$

Answer: C



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13. In which case the number of water molecules is maximum ?

A. 0.00224 L of water vapours at 1 atm and

273 K

B. 0.18 g of water

C. 18 mL of water

D. 10^{-2} mol of water

Answer: C



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14. The correct difference between first and second order reactions is that

A. A first - order reaction can catalyze , a second - order reaction cannot be catalyzed

B. The half - life of a first - order reaction does not depend on $[A_0]$, the half - life of a second - order reaction does depend on $[A_0]$

C. The rate of a first - order reaction does not depend on reactant concentrations , the rate of a second - order reaction does depend on reactant concentrations.

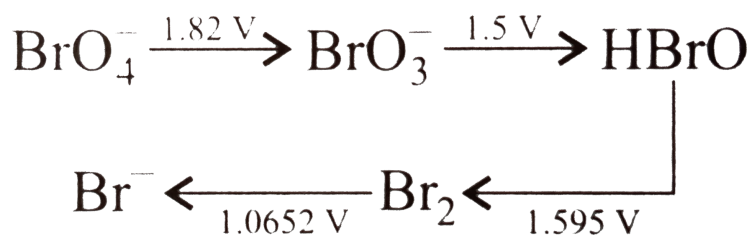
D. The rate of a first - order reaction does depend on reactant concentrations , the

rate of a second - order reaction does not depend on reactant concentrations.

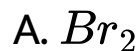
Answer: B

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15. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below :



The the species undergoing disproportionation is .



Answer: D



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16. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

A. Is tripled

B. Is doubled

C. Is halved

D. Remains unchanged

Answer: B



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17. The bond dissociation energies of X_2 , Y_2 and XY are in the ratio of 1:0.5:1. ΔH for the formation of XY is -200kJmol^{-1} . The bond dissociation energy of X_2 will be

A. 800kJmol^{-1}

B. 100kJmol^{-1}

C. 200kJmol^{-1}

D. 400kJmol^{-1}

Answer: A



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18. The correction factor 'a' to be the ideal gas equation corresponds to-

A. Electric field present between the gas molecules

B. Volume of the gas molecules

C. Density of the gas molecules

D. Forces of attraction between the gas molecules

Answer: D



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19. Consider the following species

CN^- , CN^- , NO and CN^+ .

Which one of these will have the highest bond order ?

A. CN^+

B. CN^-

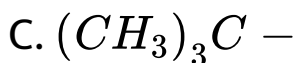
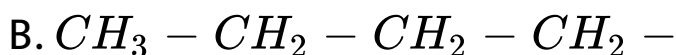
C. NOT gate

D. CN

Answer: B

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20. The structure of isobutyl group in an organic compound is



Answer: D

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21. Which of the following statements about the interstitial compounds is incorrect?

A. They are chemically reactive

B. They are much harder than the pure metal

C. They have higher melting points than the
pure metal

D. They retain metallic conductivity

Answer: A



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22. The number of carbon atoms per unit cell of diamond unit cell is

A. 8

B. 6

C. 1

D. 4

Answer: A



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23. Nitrobenzene on reaction with conc. $\frac{HNO_3}{H_2SO_4}$ at $80 - 100^\circ C$ forms which one of the following products?

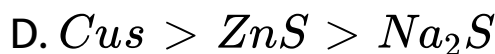
- A. 1,2 dinitrobenzene
- B. 1,3 dinitrobenzene
- C. 1,4 dinitrobenzene
- D. 1,2 ,4 trinitrobenzene

Answer: B



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24. Identify the correct order of solubility in aqueous medium



Answer: C



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25. Amongst the following , the form of water with the lowest ionic conductance at 298 K

A. sea water

B. distilled water

C. saline water used for intravenous

D. water from a well

Answer: B



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26. The number of sp^2 hybrid orbitals in a molecule of benzene is :

A. 18

B. 6

C. 12

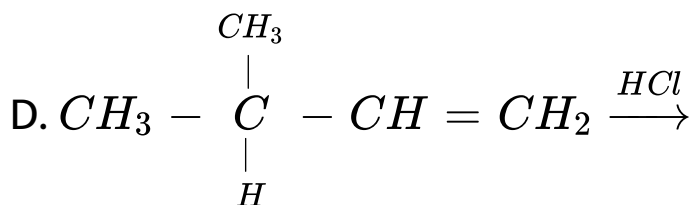
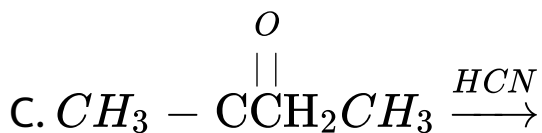
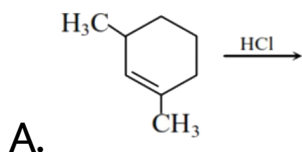
D. 24

Answer: A



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27. Which of the following reaction will not form racemic mixture as product?

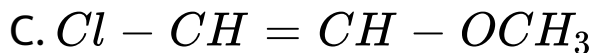
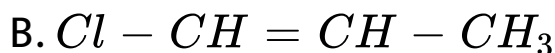
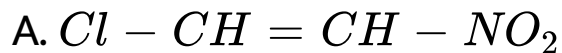


Answer: D



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28. Which of the following has the shortest C - Cl bond ?

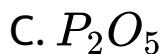


Answer: A



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29. Name the gas that can readily decolourise acidified $KMnO_4$ solution:



Answer: A



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30. The element with $Z = 114$ has been discovered recently .it will belong to which of the following family / group in periodic table and its electronic configuration is ?

- A. Carbon family , $[Rn]5f^{14}, 6d^{10}, 7s^27p^2$
- B. Oxygen family , $[Rn]5f^{14}, 6d^{10}, 7s^27p^4$
- C. Nitrogen family , $[Rn]5f^{14}, 6d^{10}, 7s^27p^6$
- D. Halogen family , $[Rn]5f^{14}, 6d^{10}, 7s^27p^5$

Answer: A



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31. Match the interhalogen compounds of column - I with the geometry in column - II and assign the correct code.

Column – I	Column – II
(1) XX'	(i) T-shape
(2) XX'_3	(ii) Pentagonal bipyramidal
(3) XX'_5	(iii) Linear
(4) XX'_7	(iv) Square-pyramidal
	(v) Tetrahedral

A.

$(A) \rightarrow (iii)(B) \rightarrow (i)(C) \rightarrow (iv)(d) \rightarrow (ii)$

B.

$$(A) \rightarrow (v)(B) \rightarrow (iv)(C) \rightarrow (iii)(d) \rightarrow (ii)$$

C.

$$(A) \rightarrow (iv)(B) \rightarrow (iii)(C) \rightarrow (ii)(d) \rightarrow (i)$$

D.

$$(A) \rightarrow (iii)(B) \rightarrow (iv)(C) \rightarrow (i)(d) \rightarrow (ii)$$

Answer: A



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32. Concentration of the Ag^+ ions in a saturated solution of Ag_2CO_3 is $2.2 \times 10^{-4} molL^{-1}$

Solubility product of $Ag_2C_2O_4$ is:

A. 2.66×10^{-12}

B. 4.5×10^{-11}

C. 5.3×10^{-12}

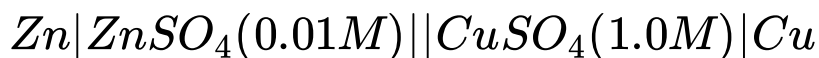
D. 2.42×10^{-8}

Answer: C



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33. The emf of a Daniell cell at $298K$ is E_1



When the concentration of $ZnSO_4$ is $1.0M$ and that of $CuSO_4$ is $0.01M$, the *emf* changed to E_2 . What is the relationship between E_1 and E_2

?

A. $E_1 < E_2$

B. $E_1 > E_2$

C. $E_2 = 0 \neq E_1$

D. $E_1 = E_2$

Answer: B



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34. Which one of following is a wrong statement?

A. The uncertainty principle is

$$\Delta E \times \Delta t \geq h / 4\pi$$

B. Half filled and fully filled orbitals have greater stability due to greater exchange energy , greater symmetry and more balanced arrangement.

C. The energy of 2s orbital is less than the energy of 2p orbital in case of Hydrogen like atoms.

D. De - Broglie's wavelength is given by

$$\lambda = \frac{h}{mv}, \text{ where } m = \text{mass of the particle,}$$

$v =$ group velocity of the particle.

Answer: C



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35. Which of the following is incorrect statement

?

A. Density decreases in case of crystals with Schottky 's defect.

B. $NaCl(s)$ is insulator , silicon is semiconductor , silver is conductor , quartz is piezo electric crystal .

C. Frenkel defect is favoured in those ionic compounds in which sizes of cation and anions are almost equal.

D. $FeO_{0.98}$ has non stoichiometric metal deficiency defect.

Answer: C



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36. Which of the following is a sink for CO_2 ?

A. Micro organism present in the soil

B. Oceans

C. Plants

D. Haemoglobin

Answer: A



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37. Which one of the following statements is not correct?

A. The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium

B. Enzymes catalyse mainly bio 0 chemical reactions

C. Coenzymes increase the catalytic activity of enzyme

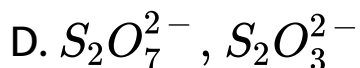
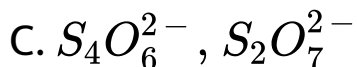
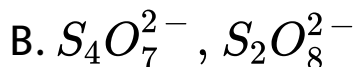
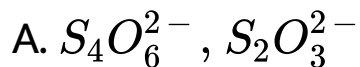
D. Catalyst does not initiate any reaction

Answer: A



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38. In which pair of ions both the species contains $S - S$ bond?



Answer: A



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39. Which of the following statement is true with respect to inert-pair effect?

A. Sn^{2+} is oxidising agent while Pb^{4+} is reducing agent

B. Sn^{2+} and Pb^{4+} are both oxidising agent and reducing agent

C. Sn^{2+} is reducing agent while Pb^{2+} is oxidising agent

D. Sn^{2+} is reducing agent while Pb^{4+} is oxidising agent

Answer: D



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40. The refining method used when the metal and the impurities have low and high melting temperatures, respectively, is

A. vapour phase refining

B. liquation

C. zone refining

D. distillation

Answer: B



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41. Elevation in the boiling point for 1 molal solution of glucose is $2K$. The depression in the freezing point for 2 molal solution of glucose in the same solvent is $2K$. The relation between K_b and K_f is

A. $K_b = 0.5K_f$

B. $K_b = 2K_f$

C. $K_b = 1.5K_f$

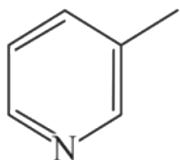
D. $K_b = K_f$

Answer: B

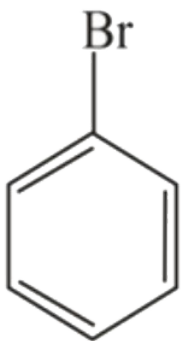


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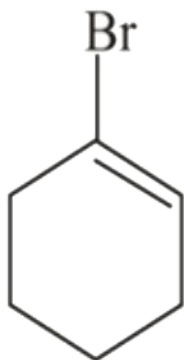
42. Which of the following compounds will produce a precipitate with $AgNO_3$?



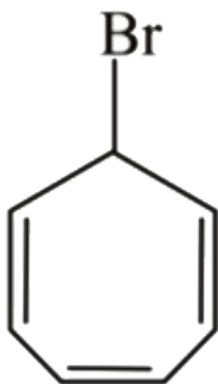
A.



B.



C.



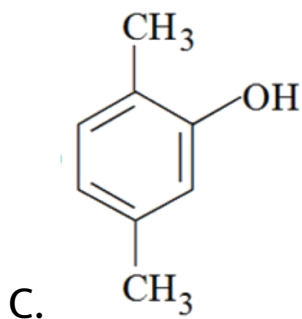
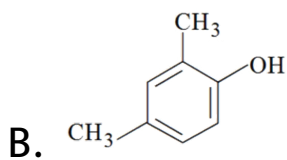
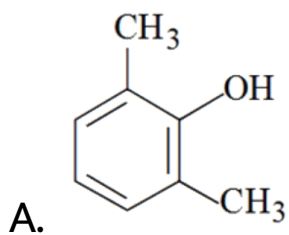
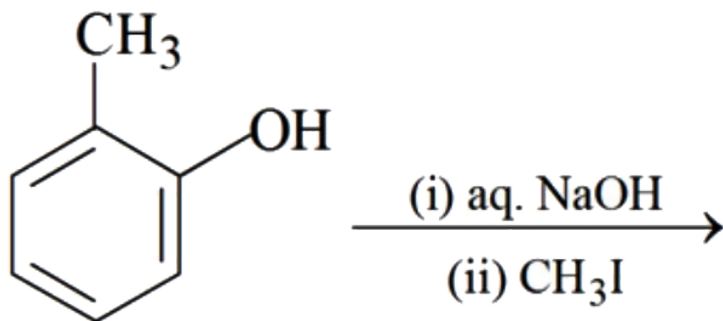
D.

Answer: D

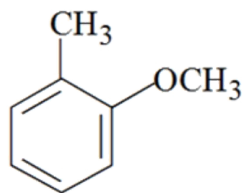


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43. The major product of the following reaction is



D.

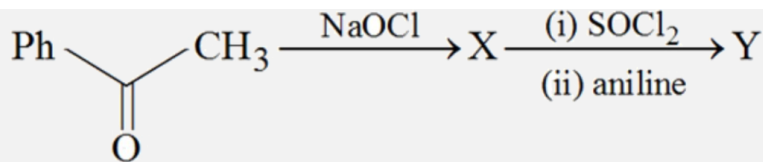


Answer: D

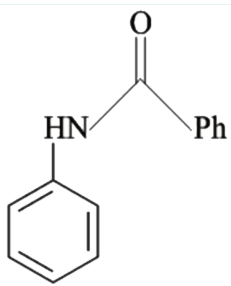


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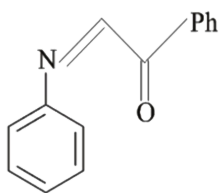
44. The major product ' Y ' in the following reaction is



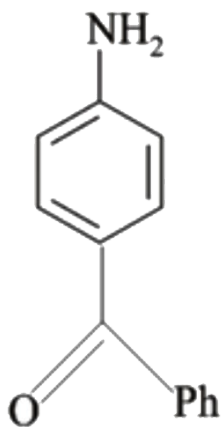
A.



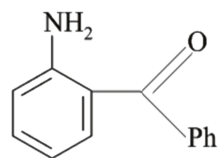
B.



C.



D.



Answer: A



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45. The correct match between Item I and Items II is :

Item I

Item II

(A) Ester test

(P) Tyr

(B) Carbylamine test

(Q) Asp

(C) Phthalein dye test

(S) Lys

A. (1) - (Q) , (2) - (S) , (3) - (P)

B. (1) - (R) , (2) - (Q) , (3) - (P)

C. (1) - (Q) , (2) - (S) , (3) - (R)

D. (1) - (R) , (2) - (S) , (3) - (Q)

Answer: A



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