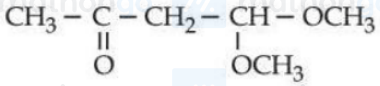
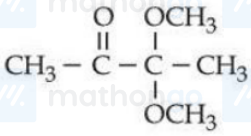
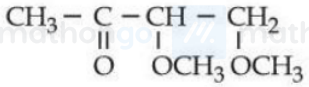
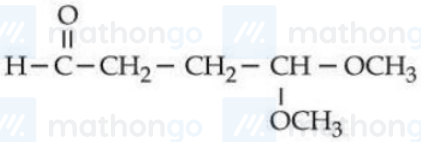
Q1. 21 January Shift 1

An organic compound " P " of molecular formula $C_6H_{12}O_3$ gives positive Iodoform test but negative Tollen's test. When " P " is treated with dilute acid, it produces " Q ". " Q " gives positive Tollen's test and also iodoform test. The structure of " P " is :

(1) 

(2) 

(3) 

(4) 

Q2. 21 January Shift 2

Match List - I with List - II.

List - I Reagents	List - II Reaction Name (Involving aldehydes)
A. $H_2, Pd - BaSO_4$	I. Etard Reaction
B. $SnCl_2, HCl$	II. Rosenmund Reduction
C. CrO_2Cl_2, CS_2	III. Gatterman - Koch Reaction
D. $CO, HCl,$ Anhyd. $AlCl_3$	IV. Stephen Reaction

Choose the correct answer from the options given below :

(1) A-IV, B-III, C-I, D-II

(2) A-II, B-IV, C-I, D-III

(3) A-IV, B-I, C-II, D-III

(4) A-II, B-III, C-IV, D-I

Q3. 22 January Shift 1

Match the LIST-I with LIST-II

	List-I (Reagents)		**List-II (Name of reaction involving carbonyl compounds)**
A.	NH_2-NH_2, KOH	*I.*	Tollen's Test
B.	$Ag(NH_3)_2OH$	*II.*	Clemmensen Reduction
C.	Aq. $CuSO_4$, Sodium potassium tartarate, KOH	*III.*	Wolff--Kishner Reduction
D.	Zn–Hg, HCl	*IV.*	Fehling's Test

Choose the correct answer from the options given below:

(1) A-II, B-I, C-IV, D-III

(2) A-III, B-IV, C-I, D-II

(3) A-III, B-I, C-IV, D-II

(4) A-IV, B-III, C-II, D-I

Q4. 22 January Shift 2

The compound A, $C_8H_8O_2$ reacts with acetophenone to form a single product via cross-Aldol condensation. The compound A on reaction with conc. NaOH forms a substituted benzyl alcohol as one of the two products. The compound A is :

(1) 2-hydroxy acetophenone (2) 4-methyl benzoic acid
(3) 4-methoxy benzaldehyde (4) 4-hydroxy benzaldehyde

Q5. 23 January Shift 1

' x ' is the product which is obtained from propanenitrile and stannous chloride in the presence of hydrochloric acid followed by hydrolysis. ' y ' is the product which is obtained from the but-2-ene by the ozonolysis followed by hydrolysis. From the following, which product is not obtained when one mole of ' x ' and one mole of ' y ' react with each other in the presence of alkali followed by heating?

(1) 2-Methylpent-2-enal (2) Pent-2-enal
(3) 2-Methylbut-2-enal (4) 3-Methylbut-2-enal

Q6. 23 January Shift 2

Which of the following statements are TRUE about Haloform reaction?:

A. Sodium hypochlorite reacts with KI to give KOI.
B. KOI is a reducing agent.
C. α, β-unsaturated methylketone $\left(CH_3-CH=CH-\overset{O}{\overset{\|}{C}}-CH_3\right)$ will give iodoform reaction.
D. Isopropyl alcohol will not give iodoform test.
E. Methanoic acid will give positive iodoform test.

Choose the correct answer from the options given below:

(1) A, C & E Only (2) B, D & E Only (3) A & C Only (4) A, B & C Only

Q7. 23 January Shift 2

Iodoform test can differentiate between

A. Methanol and Ethanol
B. CH_3COOH and CH_3CH_2COOH
C. Cyclohexene and cyclohexanone
D. Diethyl ether and Pentan-3-one
E. Anisole and acetone

Choose the correct answer from the options given below:

(1) B, C & E Only (2) A & D Only (3) A & E Only (4) A, B & E Only

Q8. 24 January Shift 2

Given below are two statements:

Statement I: Cross aldol condensation between two different aldehydes will always produce four different products.

Statement II: When semicarbazide reacts with a mixture of benzaldehyde and acetophenone under optimum pH, it forms a condensation product with acetophenone only.

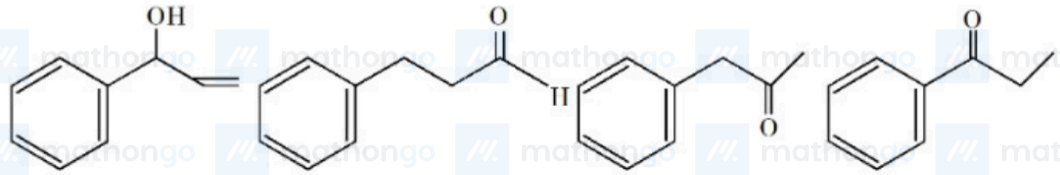
In the light of the above statements, choose the correct answer from the options given below

(1) Statement I is false but Statement II is true (2) Both Statement I and Statement II are false

(3) Both Statement I and Statement II are true (4) Statement I is true but Statement II is false

Q9. 28 January Shift 1

Given below are the four isomeric compounds (P, Q, R, S)



(P) (Q) (R) (S)

Identify correct statements from below.

A. Q, R and S will give precipitate with $2,4-$ DNP.

B. P and Q will give positive Bayer's test.

C. Q and R will give sooty flame.

D. R and S will give yellow precipitate with $I_2/NaOH$.

E. Q alone will deposit silver with Tollen's reagent Choose the correct option.

(1) A, B, D and E only (2) A and E only

(3) C and E only (4) A, C and E only

ANSWER KEYS

1. (1) **2.** (2) **3.** (3) **4.** (3) **5.** (2) **6.** (3) **7.** (3) **8.** (2)

9. (4)