

MODEL QUESTIONS – BOTANY

- Assertion (A):** In the leaves of the sugarcane C_3 and C_4 cycles are spatially separated.
Reason (R) : Hatch and Slack pathway occurs in bundle sheath cells and Calvin cycle in mesophyll cells.

 - Both (A) and (R) are true. (R) is the correct explanation of (A)
 - Both (A) and (R) are true, but (R) is not the correct explanation of (A)
 - (A) is true but (R) is false
 - (A) is false but (R) is true
- Arrange the following in the order of their occurrence in the life cycle of an angiospermic plant:

 - Primary Endosperm Nucleus
 - Microsporogenesis
 - Xenogamy
 - Pericarp

The correct sequence is:

 - I, III, II, IV
 - III, I, IV, II
 - II, III, I, IV
 - IV, I, II, III
- If one strand of DNA molecule has the nucleotide sequence TAC AAT CGG TAA, the new stand synthesized in transcription will have the nucleotide sequence as:

 - ATG TTA GCC ATT
 - TAC AAT CGG TAA
 - AUG UUA GCC AUU
 - TUC UUT CGG TUU
- Study the following lists:

List I		List II	
A) Spadix		I.	<i>Allium</i>
B) Umbel		II.	<i>Tridax</i>
C) Spike		III.	<i>Cocos</i>
D) Head		IV.	<i>Achyranthus</i>
		V.	<i>Hibiscus</i>

The correct match is:

	(A)	(B)	(C)	(D)
1.	I	IV	V	II
2.	IV	I	III	V
3.	II	III	IV	I
4.	III	I	IV	II
- Prokaryotic cell possesses the following:

 - Chloroplast
 - Cell wall
 - 70 S ribosomes
 - Well defined nucleus

The correct combination is:

 - I and II
 - II and III
 - I and III
 - II and IV

MODEL QUESTIONS – ZOOLOGY

1. In human being acromian process is presnt on:
 1) Sternum 2) Skull 3) Pectoral girdle 4) Pelvic girdle
2. Identify the sequence of leg parts of cockroach from base to tip of the leg
 A) Tibia B) Coxa C) Tarsus D) Femur E) Trochanter
 Correct sequence is
 1) B-A-D-E-C 2) B-E-D-A-C 3) A-D-C-B-E 4) A-C-B-E-D
3. Multiple selection type
 Choose the correct statements with reference to Cephalopods:
 A) Shell may be external and multichambered
 B) It includes Cuttle fishes
 C) Development includes Veliger larva
 D) Blood circulation is open type
 1) All 2) A & B 3) C & D 4) A & D
4. Matching type

SET-I	SET-II
Scientific names	Common Names
A) Pinctada	I) Elephant tusk shell
B) Mytilus	II) Sea hare
C) Dentalium	III) Pearl Oyster
D) Aplysia	IV) Marine mussel
	V) Ship worm

Identify the correct match between SET-I and SET-II

	A	B	C	D
1)	III	IV	II	I
2)	III	I	II	V
3)	III	IV	I	II
4)	III	V	II	IV
5. Statement and Reason type
 Statement (S) During favourable conditions Euglena undergoes longitudinal binary fission.
 Reason (R) Binary fission in Euglena is described as symmetrogenic division as daughter individuals are like mirror images.
 1) Both S and R correct and R is the correct explanation to 'S'.
 2) Both S and R are correct but R is not correct explanation to 'S'.
 3) S is correct but R is not correct.
 4) S is not correct but R is correct.

MODEL QUESTIONS – PHYSICS

1. A particle starts from origin at $t=0$ with a velocity of $10 \hat{i}$ m/s and moves in x-y plane under the action of force which produces a constant acceleration of $(2\hat{i} + 3\hat{j})$ m/s². The y – coordinate in meters of the particle at the instant its x-coordinate is 24m becomes
 (1) 12 (2) 6 (3) 18 (4) 3
2. When 0.2 kg of ice at 0° C mixed with 0.5 kg of water at 60° C in a container , the resulting temperature is 10° C. The heat of fusion of ice ($S_{\text{water}} = 4.186$ J/kg/K)

- (1) $1.31 \times 10^5 \text{ J/kg}$
 (3) $10.46 \times 10^5 \text{ J/kg}$

- (2) $2.62 \times 10^5 \text{ J/kg}$
 (4) $5.23 \times 10^5 \text{ J/kg}$

3. 5 bulbs each of 100 W are connected across 220 V power supply for domestic application. If each unit costs Rs. 4 then the cost per day in Rs. is
 (1) 48 (2) 24 (3) 96 (4) 12
4. A solenoid of length 1.0m has a radius of 1cm and is made up of 1000 turns. It carries a current of 2.5 A. The magnitude of the magnetic field inside the solenoid in Tesla is
 (1) $\pi \times 10^{-3}$ (2) $\pi \times 10^{-4}$ (3) $\pi \times 10^{-6}$ (4) $\pi \times 10^{-5}$

MODEL QUESTIONS – CHEMISTRY

1. Which one of the following has stable electronic configuration?
 (1) N (2) C (3) F (4) Al
2. Which one of the following exhibits acidity?
 (1) R-OH (2) R-CHO (3) R-X (4) $\text{C}_6\text{H}_5\text{-OH}$
3. Assertion (A): Carbonyl compounds undergo nucleophilic addition reactions.
 Reason (R): Carbonyl group is non-polar.
 The correct answer is:
 (1) Both (A) and (R) are true and (R) is the correct explanation of (A)
 (2) Both (A) and (R) are true and (R) is not the correct explanation of (A)
 (3) (A) is true but (R) is not true
 (4) (A) is not true but (R) is true
4. Match the following:

LIST I

- (A) Packing efficiency in ccp structure
 (B) Number of atoms in bcc unit cell
 (C) Packing efficiency in simple cubic structure
 (D) Number of atoms in fcc unit cell

LIST II

- (1) 2
 (2) 4
 (3) 52.4%
 (4) 68.0%
 (5) 74.0%

The correct answer is:

- | | (A) | (B) | (C) | (D) |
|-----|-----|-----|-----|-----|
| (1) | 5 | 4 | 3 | 2 |
| (2) | 3 | 2 | 1 | 4 |
| (3) | 5 | 1 | 3 | 2 |
| (4) | 4 | 1 | 2 | 3 |