



Assertion and Reason

Solution 1

Apomixis is a type of asexual reproduction that does not involve the fusion of gametes.

Hence, the correct answer is option C.

Solution 2

DNA being more stable than RNA is considered better than RNA for the storage of genetic information. This genetic information is expressed in the form of proteins, which are formed by the transcription of DNA into RNA, and then the translation of RNA into specific proteins.

Hence, the correct answer is option B.

Solution 3

Since the DNA dependent RNA polymerase catalyses only in $5' \rightarrow 3'$ direction, DNA strand with $3' \rightarrow 5'$ polarity acts as template strand.

Hence, the correct answer is option A.

Solution 4

Replication and transcription take place in the nucleus, while translation occurs in the cytoplasm. Inside the nucleus, transcription produces a pre-mRNA molecule, which is further processed to form mature mRNA. The mature mRNA molecule exits the nucleus and translates (protein synthesis) into the cytoplasm, as ribosomes and amino acids are required for protein synthesis and are present in the cytoplasm of a cell.

Hence, the correct option is A.

Solution 5

A, both the Assertion and the Reason are true and the Reason is a correct explanation of the Assertion.

Phenylketonuria is a recessive hereditary disease caused by the deficiency of the enzyme phenylalanine hydroxylase. This enzyme helps in breaking down phenylalanine into tyrosine. Due to its deficiency, the level of phenylalanine increases in blood and tissue fluids. As a result, phenylalanine gets released in urine.

Hence the correct option is A.

Solution 6

The function of Sertoli cells is to provide functional maturity to the spermatids.

Hence, the correct answer is option C.

Solution 7

Intra-uterine contraceptive devices are reversible methods of contraception and females can bear children after the removal of IUDs.

Hence, the correct answer is option C.

Solution 8

Vasectomy provides a permanent way of birth control and it involves surgical removal of vas deferens in males.

Hence, the correct answer is option C.

Solution 9

In eukaryotes, transcription and translation occur in separate compartments- transcription occurs in the nucleus and translation occurs in the cytoplasm, due to separation of nucleus from cytosol by nuclear membrane. So, mRNA is transported out of the nucleus to cytoplasm where all the required machinery required for protein synthesis such as large and small subunits of ribosomes, amino acids and tRNAs are present.

Hence, the correct answer is option A.

Solution 10

Pleiotropy is a phenomenon in which a single gene can exhibit multiple phenotypic expressions. Such a gene is called a pleiotropic gene. Phenylketonuria, a disease resulting from the mutation in the gene encoding enzyme phenylalanine hydroxylase, is an example of pleiotropy. The affected individual manifests multiple phenotypic expressions such as mental retardation and a reduction in hair and skin pigmentation.

Hence, the correct answer is option B.