

## Пример заданий SAT Subject – Biology

1. The genetic code table shows the amino acids that correspond to mRNA codons. Each codon is read from 3' (first nucleotide) to 5' (third nucleotide). A DNA template strand is shown. Which amino acid sequence will be assembled from the mRNA associated with this strand?

		Second mRNA Nucleotide					
		U	C	A	G		
First mRNA Nucleotide (5' end)	U	UUU (Phe) UUC UUA (Leu) UUG	UCU UCC (Ser) UCA UCG	UAU (Tyr) UAC UAA STOP UAG STOP	UGU (Cys) UUC UGA STOP UGG (Trp)	U C A G	
	C	CUU CUC (Leu) CUA CUG	CCU CCC (Pro) CCA CCG	CAU (His) CAC CAA (Gln) CAG	CGU CGC (Arg) CGA CGG	U C A G	
	A	AUU (Ile) AUC AUA (Met) AUG	ACU ACC (Thr) ACA ACG	AAU (Asp) AAC AAA (Lys) AAG	AGU (Ser) AGC AGA (Arg) AGG	U C A G	
	G	GUU GUC (Val) GUA GUG	GCU GCC (Ala) GCA GCG	GAU (Asp) GAC GAA (Glu) GAG	GGU GGC (Gly) GGA GGG	U C A G	
						U C A G	U C A G

DNA template strand: 5'-GCG ACA TAC ACT-3'

- A. Ala-Cys-Met
- B. Arg-Cys-Met
- C. Ala-Thr-Tyr-Thr
- D. Ala-Thr-Tyr-Trp
- E. Arg-Thr-Tyr-Thr

2. Which answer choice matches the functions listed below to the correct RNA types?

- I. Interprets a codon as an amino acid
- II. Binds to a gene transcript
- III. Contains information for assembling a protein

- A. I. mRNA; II. rRNA; III. tRNA
- B. I. mRNA; II. tRNA; III. rRNA
- C. I. rRNA; II. mRNA; III. tRNA
- D. I. tRNA; II. mRNA; III. rRNA
- E. I. tRNA; II. rRNA; III. mRNA

3. An original cell replicates its DNA. The cell undergoes mitosis and cell division, and one of the daughter cells replicates its DNA. Which of these BEST describes the DNA of the second-generation daughter cells?

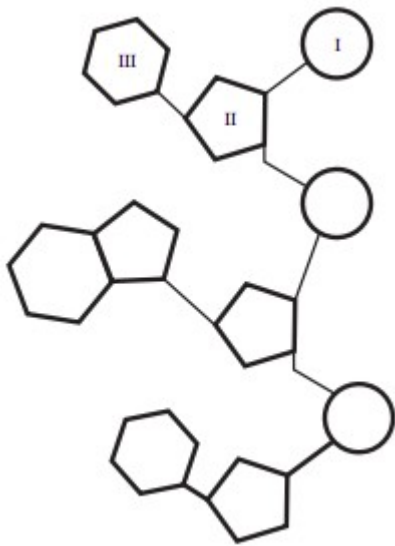
- A. One of the cells will contain DNA consisting of one strand from the original cell.
- B. One of the cells will contain DNA consisting of two strands from the original cell.
- C. Both of the cells will contain DNA consisting of one strand from the original cell.
- D. Both of the cells will contain DNA consisting of two strands from the original cell.
- E. Neither of the cells will contain DNA consisting of strands from the original cell.

4. The partial sequence of a single DNA strand is shown. What will be the sequence of the complementary strand produced during DNA replication?

3'-ATGCTGAACT-5'

- A. 5'-ATGCTGAACT-3'
- B. 5'-CGTAGTCCAG-3'
- C. 5'-GACCTGATGC-3'
- D. 5'-GCATCAGGTC-3'
- E. 5'-TACGACTTGA-3'

5. Which of these labels matches the structure of the partial RNA strand shown?



- A. I. phosphate; II. ribose; III. nitrogen base
- B. I. phosphate; II. nitrogen base; III. ribose
- C. I. nitrogen base; II. phosphate; III. ribose
- D. I. ribose; II. nitrogen base; III. phosphate
- E. I. ribose; II. phosphate; III. nitrogen base