EnterMedSchool.org

Endoplasmic Reticulum

Exam — Cell Organelles

Pre-Med practice questions about rough and smooth endoplasmic reticulum

7 items — Printable Exam

Free & Open-Source

Generated February 20, 2026

Scan to visit online

1 **A newly synthesized plasma membrane receptor first appears in the lumen or membrane of which organelle?**

A Nucleus.

B Mitochondrion.

C Rough endoplasmic reticulum.

D Golgi apparatus.

E Lysosome.

2 **Which function is most specifically associated with the smooth endoplasmic reticulum in hepatocytes (liver cells)?**

A Attachment of ribosomes and synthesis of secreted proteins.

B Detoxification of lipid-soluble drugs and poisons.

C Packaging of proteins into clathrin-coated vesicles.

D Digestion of worn-out organelles.

E Formation of the mitotic spindle.

3 **In skeletal muscle cells, the sarcoplasmic reticulum is a specialized form of endoplasmic reticulum that primarily functions to:**

A Synthesize contractile proteins actin and myosin.

B Store and release Ca^{2+} to regulate muscle contraction.

C Produce ATP via oxidative phosphorylation.

D Generate action potentials.

E Degrade damaged myofibrils by autophagy.

4 **If the signal recognition particle (SRP) in a eukaryotic cell is nonfunctional, which class of proteins is most immediately affected?**

A Enzymes of glycolysis in the cytosol.

B DNA polymerases in the nucleus.

C Secreted proteins that normally enter the rough ER during translation.

D Mitochondrial matrix enzymes imported after translation.

E Cytoskeletal proteins such as actin.

5 **Which statement correctly describes the initiation of translation for proteins that will be secreted from the cell?**

A Translation begins on ribosomes already bound to the rough ER membrane.

B Translation begins on free ribosomes and the ribosome-nascent chain complex is then targeted to the rough ER.

C Translation occurs only inside the Golgi apparatus.

D Translation occurs in the nucleus to allow direct entry of mRNA into the ER.

E Translation is completed in the cytosol and proteins later diffuse into the ER lumen.

6 **A single-pass transmembrane protein has its N-terminus in the lumen of the rough ER and its C-terminus in the cytosol during synthesis. After it reaches the plasma membrane, where will its N-terminus be located?**

A Facing the cytosol.

B Facing the extracellular space.

C Facing the mitochondrial matrix.

D Facing the nuclear interior.

E Randomly facing either the cytosol or extracellular space with equal probability.

7 **In a secretory cell, misfolded proteins accumulate in the rough ER because their disulfide bonds cannot form properly. Which response is most directly triggered at the level of the ER?**

A Formation of more lysosomes to digest misfolded proteins in the cytosol.

B Activation of the unfolded protein response, including upregulation of ER chaperones.

C Immediate fusion of the ER with the plasma membrane to expel misfolded proteins.

D Conversion of rough ER into smooth ER by loss of ribosomes.

E Direct degradation of misfolded proteins by mitochondrial proteases.

Answer Key

#	Ans	Answer Text
1	C	Rough endoplasmic reticulum.
2	B	Detoxification of lipid-soluble drugs and poisons.
3	B	Store and release Ca^{2+} to regulate muscle contraction.
4	C	Secreted proteins that normally enter the rough ER during translation.
5	B	Translation begins on free ribosomes and the ribosome-nascent chain comp...
6	B	Facing the extracellular space.
7	B	Activation of the unfolded protein response, including upregulation of E...