**Question 1**

Insulin release:

Select one:

a. Is inhibited by phosphodiesterase inhibitors

b. Is increased by β adrenergic stimulators

c. Is inhibited by raised cyclic AMP in pancreatic β cells

d. Is not stimulated by blood glucose levels below 6 mmol/L

Answer B. Ganong 23rd Edition pg 326 table 21-6 “B-adrenergic stimulators stimulate insulin secretion”

**Question 2**

Regarding the insulin receptor, which statement is INCORRECT?

Select one:

a. Insulin binds to the beta subunit on the outer surface of the cell membrane

b. It is a tetramer of two alpha and two beta subunits

c. The binding of insulin increases the activity of tyrosine kinase on the intracellular end of the receptor

d. It is present even in cells which do not increase their glucose intake in response to insulin

Answer A. Ganong 23rd Edition pg 321 “alpha subunits bind insulin”

**Question 3**

Which glucose transporter is used for the facilitated diffusion into pancreatic B cells?

Select one:

a. Glut 4

b. Glut 3

c. Glut 2

d. Glut 1

Answer C. Ganong 23rd Edition pg 320 table 21-5 “B-cell glucose sensor”

**Question 4**

Which is correct regarding insulin?

Select one:

a. It decreases intracellular potassium concentration

b. It consists of two polypeptide chains linked by two disulphide bridges c. The majority of exogenous insulin is metabolised by the liver

d. It is the only molecule responsible for insulin-like activity in the blood

Answer B. Ganong 23rd Edition pg 316 “two chains of amino acids linked by disulfide bridges”

**Question 5**

Which is correct regarding the action of insulin on adipose tissue?

Select one:

a. It reduces triglyceride storage in adipocytes

b. It induces lipoprotein lipase which actively hydrolyses triglyceride from circulating lipoproteins

c. It directly stimulates intracellular lipase

d. It increases circulating free fatty acids

Answer B Ganong 23rd Edition pg 319 table 21-4 “increased triglyceride deposition”

**Question 6**

Which is correct regarding the actions of glucagon on the liver?

Select one:

a. It causes glycogenolysis via activation of growth hormone

b. It increases metabolism of glucose-6-phosphate

c. It causes glycogenolysis via activation of calcitonin

d. It increases gluconeogenesis from available amino acids

Answer D. Ganong 23rd Edition pg 329 “gluconeogenic”

**Question 7**

Which is true regarding the actions of glucagon?

Select one:

a. It has a negative inotropic effect on the myocardium

b. It increases renal tubular sodium reabsorption

c. It activates hormone-sensitive lipase

d. It increases blood lactate levels

Answer C. Ganong 23rd Edition pg 329 “lipolytic activity”

**Question 8**

Which of the following does NOT stimulate insulin secretion?

Select one:

a. Glucagon

b. Acetylcholine

c. Acetoacetate

d. Hypokalemia

Answer D. Ganong 23rd Edition pg 326 table 21-6 “K+ depletion causes inhibition”

**Question 9**

Which of the following increases pancreatic polypeptide secretion?

Select one:

a. Protein ingestion

b. Intravenous glucose

c. Hyperglycaemia

d. Atrial natriuretic peptide

Answer A. Ganong 23rd Edition pg 331 “secretion is increased by a meal containing protein”

**Question 10**

Which of the following is an action of somatostatin?

Select one:

a. It is a synaptic transmitter in the retina

b. It stimulates glucagon secretion

c. It stimulates pancreatic polypeptide secretion

d. It increases the contraction of the gallbladder

Answer A. Ganong 23rd Edition pg 145 “intracellular messenger systems”