MINI SAMPLE TEST-Charles University

BIOLOGY

1. Mother has blood group AB, her child B. Men with following blood groups can be fathers of this child:
a) A
b) B
c) 0
d) AB

2. Crosses between dominant homozygotes and heterozygotes (AAxAa) under condition of complete dominance exhibit in the progeny:
a) uniform phenotype
b) genotypic ratio 1:1
c) phenotype segregation 3:1
d) phenotype segregation 1:1

3. Prophase I of the meiotic division includes:
a) leptotene
b) zygotene
c) recombination events
d) cytokinesis

4. Substances which can stimulate cell division are called:
a) mutagens
b) cytostatics
c) antibiotics
d) mitogens

5. mRNA serves:
a) for transfer of amino acids to ribosomes
b) as a template for tRNA production
c) for rRNA transfer from nucleus to ribosomes
d) as a template for protein production

6. Prokaryotic cells:
a) contain many ribosomes for polypeptide synthesis
b) have their DNA in the form of a single long chromosome
c) could contain small circular plasmids
d) possess a nucleus that is separated from cytoplasm by nuclear membrane

7. Photosynthesis:
a) occurs in two stages – light and dark
b) is a process by which light energy is trapped and used to manufacture carbohydrate by fixation of CO_2
c) in its light stage produces ATP
d) in its dark stage reduces CO_2 to carbohydrate

8. Catabolism:
a) is the phase of metabolism that consists of breaking down complex compounds into simpler ones
b) involves mostly exergonic reactions
c) does not exist in the muscle cells
d) is the typical reaction for growing organisms

9. Fat-soluble vitamins are:
a) A
b) B2 (Riboflavin)
c) C
d) Folic acid

10. Placenta:
a) develops from the fetal membranes, the chorion and allantois
b) produces chorionic gonadotropin
c) is ejected first before delivery
d) enables mixing of fetal and maternal blood

CHEMISTRY

1. Nitrites are the salts of:
a) nitrous acid
b) nitric acid
c) nitrate acid
d) nitrite acid

2. The oxidation number of P in H_3PO_4 is:
a) -5
b) +5
c) +3
d) -3

3. One mole of a gas at standard temperature and pressure occupies a volume of:
a) 22.4 ml
b) 22.4 l
c) 22.4 dm3
d) 22.4 m3

4. Primary or secondary alcohols can be oxidized by strong oxidizing agent to:
a) aldehydes
b) ethers
c) esters
d) amines

5. Acylglycerols are:
a) fats
b) esters

c) ethers
d) salts

6. HOOC.CH2.CH2.COOH is:
a) succinic acid
b) butyric acid
c) malonic acid
d) oxalic acid

7. According to the reaction represented by the unbalanced equation … SO2 (g) + … O2 (g) => … SO3 (g), how many moles of SO2 (g) are required to react completely with 1 mole of O2 (g)?
a. 0.5 mol
b. 1 mol
c. 2 mol
d. 3 mol

8. Formaldehyde is an oxidation product of:
a. methanol
b. formic acid
c. ethanol
d. acetaldehyde

9. Most human enzymes
a) are absorbed from the food
b) work best at temperatures between 35 and 42 °C
c) resist strongly acidic environment
d) have no homology in the nature

10. Zinc:
a) is an element dangerous to human even in very small quantities
b) is a microbiogenic element
c) as a noble metal, it practically does not form ions in the nature
d) is a co-factor of some enzymes

SOLUTIONS

Question No.	**Biology**	**Chemistry**
1	A, B, C, D	A
2	A, B	B
3	A, B, C	B, C
4	D	A
5	D	A, B
6	A, B, C	A
7	A, B, C, D	C
8	A, B	A
9	A	B
10	A, B	B, D