Cytology Practice Quiz and Exercises - ANSWERS

1) What are the 6 signs of life? (6 marks)

Metabolism Responsiveness Movement Growth Differentiation Reproduction

2) Give 2 example of physiological variable in the body which need to be kept within tight limits (2 marks)

Core temperature Water and electrolyte concentrations pH (acidity or alkalinity) of body fluids Blood glucose levels Blood and tissue O2/CO2 level Blood pressure

3) Give an example of something regulated by a positive feedback mechanism (1 mark)

Uterine contractions Milk production Blood clotting

4) Name the 4 body cavities (4 marks)

Cranial Thoracic Abdominal Pelvic

5) Which body cavity would you find the following organs in: (4 marks)

- a) Brain
- b) Ureters
- c) Bronchi
- d) Pancreas

Brain = Cranial Ureters = Pelvic Bronchi = Thoracic Pancreas = Abdominal

6) What do we call the family of cells that don't have a nucleus? (1 mark)

Prokaryotae

7) What do we call the basic watery fluid inside cells? (1 mark)

Cytosol

8) Describe the structure of a plasma membrane (2 marks)

Phophoslipid bilayer Proteins

9) What do plant cells have that human cells do not? (1 mark)

Cell wall

10) Which human cell does not have a nucleus? (1 mark)

Red blood cell

11) How many pairs of chromosomes would you find in a human cell? (1 mark)

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12) What is the job of mitochondria? (1 mark)

Energy production

13) What is the difference between rough and smooth endoplasmic reticulum? (1 mark)

Rough endoplasmic reticulum has ribosomes embedded in the surface

14) What do lysosomes contain? (1 mark)

Digestive enzymes

15) Which cell organelle forms cilia and flagella? (1 mark)

Microtubules

16) What are the names of the 2 method of cell division? (2 marks)

Mitosis Meiosis

17) Which type of cell stops being able to do mitosis once we are adults? (1 mark)

Nerve cell

18) How many chromosomes in a diploid cell? (1 mark)

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19) Which form of cell division produces 2 identical daughter cell? (1 mark)

Mitosis

20) Which form of cell division is used to make gametes? (1 mark)

Meiosis

21) What is a mutation? (1 mark)

Change in the genetic code

22) What are the 2 steps of protein synthesis called? (2 marks)

Transcription Translation

23) Which form of transport across cell membranes requires ATP? (1 mark)

Active transport

24) What is osmosis? (1 mark)

Movement of water down its concentration gradient

25) What is the difference between diffusion and facilitated diffusion? (1 mark)

In facilitated diffusion the substance must pass through protein channels to get into the cell

26) What does the term physiology mean? (1 mark)

Study of how the body works

27) Define a tissue (1 mark)

Groups of cells that work together to perform a function

28) What are the 6 characteristics of life? (6 marks)

Movement Responsiveness Reproduction Metabolism Growth Differentiation

29) What are the 3 component of a homeostatic control system? (3 marks)

Detector Control centre Effector

30) What sort of feedback loop is used to control core body temperature (1 mark)

Negative feedback

31) What sort of feedback loop is used to control blood clotting (1 mark)

Positive feedback

32) What is the outcome of a homeostatic imbalance? (1 mark)

Disease

33) Name 3 structures you would find in the thoracic cavity (3 marks)

Trachea, 2 bronchi, 2 lungs, heart, aorta, superior and inferior vena cavae, blood vessels, oesophagus, lymph vessels, lymph nodes, nerves.

34) What kind of cells are bacteria (1 mark)

Prokaryote

35) Give 3 functions of membrane proteins (3 marks)

Combined with carbohydrate molecules = immunological identity Receptors for hormones etc. Transport proteins

36) What is unique about the genes in embryological cells? (1 marks)

They are all switched on

37) Give the main role of the following organelles (3 marks)

- a) Mitochondria
- b) Golgi apparatus
- c) Smooth endoplasmic reticulum
- a) Energy production
- b) Packaging plant
- c) Synthesises lipids and steroids hormones

38) What are the names of the 2 cell structures for movement (2 marks)

Cilia Flagella

39) How many pairs of chromosomes in a normal human cell? (1 mark)

23

40) Which type of cell division create 4 unique daughter cells? (1 mark)

Meiosis

41) Name a type of cell that is continually undergoing mitosis (1 mark)

Skin cells

42) Suggest 2 factors that might cause a mutation (2 marks)

Chance, mutagenic agents like: x-rays, ultra violet rays

43) What is the purpose of protein synthesis (1 mark)

Use the DNA code to make the proteins the cell needs

44) What is diffusion? (1 mark)

Movement of a chemical substance from an area of high concentration to an area of low concentration

45) Explain the term isotonic (1 mark)

Concentration of water and solutes is the same inside and outside the cell so movement of water in and out of the cell is balanced

46) Give an example of active transport (1 mark)

Sodium potassium pump Pinocytosis Phagocytosis

47) Give an example of where you might find a tight junction (1 mark)

Stomach, intestines and bladder

48) Suggest 2 places you would find simple squamous epithelium (2 marks)

Alveoli/lung capillaries, Kidney glomerulus and tubules, Capillaries and the heart as endothelium Body cavities as mesothelium Serous membranes All vessel lining (lymph, blood)

49) What is an exocrine gland? (1 mark)

Discharge their excretion to a surface

50) What do fibroblasts do? (1 mark)

Produce protein fibres – Healing and new tissue

Embryo/fetus Connective tissue from which all other kinds are made

51) Name 2 places you would find a mucous membrane (2 marks)

Lining of the alimentary, respiratory and genitourinary tracts

52) Describe the structure of a serous membrane (3 marks)

Double layer of loose areolar C.T. lined by simple squamous epithelium. Parietal layer lines a cavity

Visceral layer surrounds organs (viscera) within the cavity Layers are separated by serous fluid secreted by the epithelium