Entrance examination for grade 12 from 1995 – 2011

Grade 11 Unit 4

Cell biology

1, Which of the following structures occupies the center of a mature plant cell?

A, Cytoplasm B, Nucleus C, Central vacuole D, Plastids

2, Which of the following organelles are absent in higher plant cells?

A, Plastids B, Centrioles C, Ribosome D, Mitochondria

3, Which cellular structures are responsible for autolysis or self-destruction?

A, Chromosomes B, Ribosomes C, Lysosomes D, Golgy apparatus

4, Which one of the following unicellular organism is prokaryote?

A, Amoeba B, Bacteria C, Euglena D, Paramecium

5, If tissue from sliced potato tuber are kept in sea water, which of the following is more likely to happen?

A, The cell will take up water and burst B, The cell lose water and become flaccid

C, The cell become dry and impermeable D, The cells actively pump out salts

6, If the protoplasm shrinks away from the cell wall when a plant cell is bathed in a sugar solution, what is the concentration of the solution relative to the protoplasm of the plant cell?

A, Hypertonic B, isotonic C, Hypotonic D, Isosmotic

7, Which of the following structure is missing in prokaryotic cell?

A, Cytoplasm B, Plasma membrane C, Nuclear membrane D, Nuclear material

8, What are the molecules found in the cell membrane that makes it more fluid?

A, Proteins and amino acids B, Saturated fatty acids and carbohydrates

C, Phosphates and hydrocarbons D, Unsaturated fatty acid and cholesterol

9, If 0.95 solutions is isotonic to certain animal cell, that animal cell will lose more water when kept in which of the following solution?

A, 0.2% salt solution B, 1.0% salt solution C, 0’9% salt solution D, 1.5% salt solution

10, In which of the following type of cellular transportation across the cell membrane, do substances move against their concentration gradient?

A, Osmosis B, Simple diffusion C, Facilitated diffusion D, Active transport

11, Which of the following organelles of eukaryotic cells is believed to be once an independent prokaryotic cell?

A, Nucleus B, Chloroplast C, Endoplasmic reticulum D, Golgy apparatus

12, Choose the structure whose typical function is synthesis of protein

A, Nucleus B, Ribosome C, Vacuole D, Centriole

13, Which function is carried out by the golgy apparatus?

A, Protein synthesis B, Protein denaturation C, Digestion of protein D, Modification of protein

14, Which of the following term best describes plant cell that is full of water?

A, Flaccid B, Haemolysed C, Turgid D, Plasmolysed

15, Among the following which organelle is note found by a biological membrane?

A, Nucleus B, Chloroplast B, Ribosome D, Mitochondria

16, Which of the following is not found in the animal cell?

A, Nucleus B, Chloroplast C, Ribosome D, Mitochondrion

17, Lysosomes function in

A, Protein synthesis B, Processing and packaging C, Intracellular digestion D, Lipid synthesis

18, In which of the following organelles of the prokaryotic cell are enzymes synthesized?

A, Nuclei B, Mitochondria C, chloroplast D, Ribosomes

19, Which one of the following is part of eukaryotic plant cell that is devoid of DNA?

A, Nucleus B, Cytoplasmic fluid C, Mitochondria C, Chloroplast

20, Which one of the following organelles of the cell is involved in the energy release of eukaryotic cells?

A, Chloroplast B, endoplasmic reticulum C, Nucleus D, Mitochondria

21, Which one of the following term refers to the diffusion of water across a selectively permeable membrane?

A, Dialysis B, Osmosis C, Cohesion D, Cytoplasmic streaming

22, Which of the following structures are structurally and evolutionary more related to prokaryotic cells?

A, Fungi and protozoa B, Higher plants and animals

C, Chloroplast and mitochondria D, Unicellular green algae and fungi

23, What is the process by which water passes across the cell membrane?

A, Active transport B, Osmosis C, Facilitated diffusion D, pinocytosis

24, Of the following constituents of protoplasm, which is inorganic in nature?

A, Starch B, Protein C, Water D, None of the above

25, When does hypotonic condition exist in the environment of the cell?

A, When there is equal concentration of solutes outside and inside the cell

B, when the solute concentration outside the cell is greater than inside the cell

C, When solute concentration inside the cell is greater than outside the cell

D, When the net movement of water is from the cell to outside of the environment

26, Which of the following is important to regulate entry and exit of materials into and out of the plant cell?

A, Cell wall B, Cell membrane C, Nucleus D, Central vacuole

27, All the living components of the cell collectively known as what?

A, cytoplasm B, Nucleus D, Cell membrane D, Protoplasm

28, Which of the following is found in both plant and animal cells?

A, Cell wall B, chromoplast C, Chromosomes D, Leucoplasts

29, What happens to human red blood cell when it is placed in hypertonic solution?

A, it becomes turgid B, It might swells and burst

C, It might loss water and shrinks D, It will remain unchanged

30, Which organelle of cell has function of modifying protein for secretion?

A, Golgy body B, Ribosome C, Food vacuole D, Lysosome

31, If a piece of fresh potato are kept for some time in sugar solution of 20%, 10%, 5% and distilled water, which piece will gain the highest percentage of weight?

A, The one in20% solution B, The one in 10% solution

C, The one in 5% solution D, The one in distilled water

32, To which category of enzymes do the digestive enzymes that break down food substances in the human alimentary canal belong?

A, Intracellular enzymes B, Globular enzymes C, Extra cellular enzymes D, Fibrous enzymes

33, Which one of the following is largely made up of phospholipid?

A, Cell wall B, cell membrane C, Nucleus D, chromosome

34, Choose the name of the researchers /scientist who introduced the term cell for the first time?

A, Aristotle B, Anton van leuwenhoek C, Robert Hooke D, Robert Brown

35, Among the following discoveries in biology which one is the latest of all?

A, The law of heredity B, the cell theory

C, The double helix nature of the DNA C, The binomial system of nomenclature

36, Which of the following is a process by which cells take in fluid by means of vesicles?

A, Pinocytosis B, endocytosis C, Osmosis D, Phagocytosis

37, Which of the following structures divide the cytoplasm of plant cell into two halves?

A, Nuclear membrane B, Cell plate C, spindle D, Cleavage flow

38, which of the following organelles are likely to be more abundant in active cells such as muscle cells of human heart?

A, Lysosome B, chromosome C, Mitochondria D, Golgy bodies

39, Which of the following pairs are both organelles concerned with energy transformation?

A, Nucleus and nucleolus B, Mitochondria and nucleus

C, Chloroplast and vacuole D, Chloroplast and mitochondria

40, Sodium ion passes from the region where they are at lower concentration to the region they are found at higher concentration in human cells. This is an example of which of the following process?

A, Osmosis B, Passive transport C, Simple diffusion D, Active transport

41, Choose the structure that is usually present only in the cells of animals?

A, Vacuole B, Cell wall C, Nucleus D, Centrioles

42, Why is the leaves and the soft young stems of plants that have started witling become stiff again when they are provided with water? This is because of:

A, Fast intake of minerals B, The cooling effect of water

C, Increased turgor pressure D, Increased rate of photosynthesis

43, Which of the following statement is in agreement with the modern cell theory?

A, Cells come from nothing B, Cells come from existing cells

C, Cells come from nonliving materials D, Cells arise by means of spontaneous generation

44, Which of the following ideas in the cell theories was combined by Rudolf Virchow?

A, All plans are made up of cells B, All animals are made up of cells

C, Cells are the structural unit of life D, Cells come from preexisting cells

45, Which of the following mode of material transport across the cell membrane is not governed by the concentration gradient of the transported material?

A, Simple diffusion B, facilitated diffusion C, osmosis d, Active transport

46, Which means of particle transport requires input energy by the cell?

A, Simple diffusion B, Facilitated diffusion C, Osmosis D, Active transport

47, What is the term for the process by which organisms keep their internal conditions at a fairly constant state?

A, Catabolism B, Evolution C, Homeostasis D, Photosynthesis

48, Which of the following requires expenditure of ATP?

A, Osmosis B, Facilitated diffusion C, Simple diffusion D, Endocytosis

49, Suppose we consider the hypothetical cells(designed A, B, C and D) having cubic shapes with their sides measuring 2, 4, 6 and 8 arbitrary units respectively which of these cells has the largest surface area to volume ratio?

A, Cell A B, cell B C, Cell C D, cell D

50, What type of molecules cannot pass across the cell membrane by simple diffusion?

A, Charged molecule B, Nonpolar molecule

C, Lipid soluble molecules D, Molecules of very small size

51, Suppose three potato cylinders are kept for some time in 15%, 8% and 4% sucrose solution, respectively, and the fourth cylinder is kept in distilled water, which of the cylinder will be more flaccid?

A, The cylinder in 4% solution B, The cylinder in 8% solution

C, The cylinder in 15% solution D, The cylinder in distilled water

52, Which of the following is the main constituent of biological membrane?

A, Phospholipids B, Cholesterol C, Glycoprotein D, glycolipid

53, The main component of plant cell wall is

A, Starch B, cellulose C, Protein D, Chitin

54, Which of the following kingdom of life consisting of prokaryotic organisms?

A, Fungi B, Monera C, Protists D, Plantae

55, Which unit is best to use for measuring smallest cells and organelles?

A, Micrometer C, Millimeter C, Milliliter D, Nanometer

56, If the size of the cell increases, which one of the following gets smaller?

A, The volume of the cell B, the surface area of the cell

C, the surface area to volume ratio of the cell D, the volume to surface area of the cell

57, If a suspension of mixture of cellular organelles is spur in as centrifuge, which organelle settle to the bottom first?

A, Mitochondria B, Nuclei C, Chloroplast d, ribosome

58, Which of the following is an important function of Golgy apparatus?

A, Protein synthesis B, Packaging of protein for export out of the cell

C, Removing of debris from the cell D, Storage of waste materials not needed by the cell

59, In which of the following features are eukaryotic cells distinguished from prokaryotic cells?

A, they have mitochondria C, Their nuclei lack membranes

C, they have no DNA D, They have smaller ribosomes

60, What will happen if human red blood cells are kept in hypotonic solution?

A, Lose water by osmosis and burst B, Lose water by osmosis and shrink

C, Take in water by osmosis, swells and burst D, take in watery by osmosis, swell and remain turgid

61, In which type of solution water potential more negative than in the cell?

A, Hypotonic B, hypertonic C, Isotonic D, equal solute an d solvent concentration

62, Which of the following paired organelles are membranes bound?

A, Ribosome and periosomes B, Chloroplast and ribosome

D, Mitochondria and ribosome D, Chloroplast and mitochondria

63, Most of the cell membranes primarily composed of which compounds?

A, Protein and lipid B, DNA and ATP C, Chitin and starch D, Nucleotides and amino acids

64, If the red blood cells shrink when placed in certain solution, what is the strength of the solution relative to the strength of the protoplasm of the cell?

A, Hypotonic B, Isotonic C, hypertonic D, Isosmotic

65, Which of the following cell types can be rich in lysosome?

A, Red blood cell B, Nerve cell C, Phagocytic cells D, Muscle cells

66, One of the following would be harder to see under the ordinary light microscope that is more likely to be available in school laboratories

Nucleus B, A bacterium C, Mitochondria D, ribosome

67, Which one of the following cellular forms did Robert Hooke observe under his crude microscope?

A, Bacteria B, Protozoa C, Yeast D, Empty cell wall

68,On which of the following organelles of the eukaryotic cells does protein synthesis takes place?

A, The nucleus B, The ribosome C, The chloroplast D, The mitochondrion

69, What is the general term for the part of protoplasm that lies outside the nucleus?

A, Cytosol C, Cytoplasm C, Central vacuole D, Plasma membrane

70, Choose the organism that belongs to the eukaryotic?

A, Bacteria B, blue green algae C, Amoeba D, virus

71, Which of the following structure is not present in animal cell?

A, Cell wall B, Nucleus C, Protoplasm D, Nucleic acid

72, Which of the following cellular structure is possessed by all cells?

A, Cell membrane B, Nucleus C, Cell wall D, Golgy apparatus

73, Which one of the following eukaryotic cell organelles was a free living cell before eukaryotic cells evolved?

A, Nucleus B, Ribosome C, Chloroplast D, Nucleolus

74, Which of the following mechanisms move digested amino acids and glucose across the plasma membrane of the cell lining the wall of the small intestine?

A, Osmosis B, Simple diffusion c, Facilitated diffusion d, Active transport

75, Which of the following is unnecessary for an object to be considered a living thing?

A, Ability to respond to the stimuli B, Ability to reproduce C, Ability to gown D, ability to move

76, If a cell fails to clear cellular debris, which one of its organelles is most likely not functioning?

A, Nucleus B, Mitochondria C, Endoplasmic reticulum D, Lysosome

77, Suppose a hypothetical cube shaped cell has sides of 10 micrometre, what is the surface area to volume ratio of this cell?

A, 6: 10 B, 10: 10 C, C, 3:6 D, 4:8

78, Among the following identify the organelle in which nucleic acid is not found

A, Mitochondria B, Chloroplast C, ribosome d, Golgy apparatus

79, Which of the following solution does an animal cell undergo hemolysis?

A, In hypotonic solution B, in hypertonic solution

C, In isotonic solution D, In both hypotonic and hypertonic solution

80, Which of the following will happen if plant cell is kept in a solution that is strong than in protoplasm?

A, The cell will become turgid B, The central vacuolar will expand

C, The protoplasm will get plasmolysed D, The cell will swell and burst

81, Which of the following units of measurement is more convenient to express the size of cellular organelle?

A, Meter B, Centimeter C, Millimeter D, Micrometer

82, Which of the following is not true about mitochondria and chloroplast?

A, Both contain chlorophyll B, Both contain nucleic acid

C, Both have double membrane D, Both transduce energy

83, Among the following scientists who contributes to the cell theory, identify the one who stated that a cell can arise only from another cell like it?

A, Robert Hooke B, Theodor schwann C, Matthias D, Rudolf Virchow

84, What does it mean when biologists express the cell membrane as a unit membrane?

A, A cell is covered by a single membrane

B, A membrane is only one lipid layer thick

C, All cells have essentially similar membrane

D, A membrane is covered by a single layer of protein

85, Which of the following classes of molecule cannot pass easily across the cell membranes by simple diffusion?

A, Small non polar molecules B, Lipid soluble molecules C, Non polar molecules
D, Polar molecules

86, Which of the following mode of transport is used by the cells to move substances against their concentration gradient?

A, Osmosis B, Simple diffusion C, facilitated diffusion D, Active transport

87, Which of the following factors determines the rate at which organelles settle out of cell homogenate if spun in centrifuge?

A, Mass of the organelle B, Function of the organelle in the cell

C, Location of the organelle in the cell D, Thickness of the membrane covering the organelle

88, Which of the following will primarily happen if the enzyme in hew lysosome of the cell is defective?

A, Cellular debris will not be removed B, Chromosome replication will cease

C, ATP production will stop D, Diffusion process will stop

89, Of the following four cells whose surface area to volume ratio given, which cells can more efficiently transport its needs of material across the cell surface?

A, 24:8 ratio B, 54: 27 ratio C, 96:64 ratio D, 150:125 ratio

90, What is the best term that expresses the movement of substances in cells against their concentration gradient?

A, Active transport B, Passive transport C, osmosis D, diffusion

91, Who was the person that first observed living cells moving around when he examined drops of water under microscope?

A, Robert Brown B, Robert Hooke C, Anton van leeuwemhoek D, Theodor Schewann

92, Which one of the following events happened before all the others?

A, The cell theory was proposed B, The protozoa were discovered

C, The compound microscope was invented D, the structure of DNA was described

93, Which of the following has a bigger size than all the others?

A, A ribosome taken from an animal cell B, A mitochondrion taken from a plant cell

C, A nerve cell taken from a human brain cell D, A glucose molecule taken from a plan cell

94, Which of the following parts of the plant cell is not living component of the cell?

A, Cell membrane B, Cell wall C, Cytoplasm D, Nucleus

95, According to fluid mosaic model of plasma membrane, what does the word mosaic refers to?

A, the hydrophilic property of fatty acid B, the bilayer nature of the membrane

C, The arrangement the proteins D, The movement of the phospholipids

96, What happens when a plant cell absorbs in more water?

A, Shrink B, Become turgid C, Become witted D, it swells and burst

97, Which of the following organelles is common to both plants and animals?

A, Cell wall B, Chloroplast C, Mitochondria D, Central vacuole

98, If cell fails to form lysosome, which of the following cellular functions will get disrupted first?

A, Protein synthesis B, Chromosomal replication

C, Removal of cellular debris D, Transport across cell membrane

99, For the substances to easily pass across the cells membrane by simple diffusion, which of the following properties should it possess?

A, Large size B, Ability to dissolve in lipid C, Positive charge D, Negative charge

100, Which knowledge about cell biology did scientists discover after all the others?

A, The first understanding that living things are made up of cells

B, Knowledge about how chromosomes behave during mitosis

C, First understanding about the double helix structure of DNA

D, First understanding about DNA sequence in human genome

101, Who was the first person who believed to have seen live moving cells under a microscope?

A, Robert Hooke B, Rene Dutrochet C, Anton van Leeuwenhoek D, Theodor schwaann

102, Which of the following is lacking in prokaryotic cells?

A, cytosol B, ribosome C, DNA strand D, cellulose

103, Cells were seen using microscope by

A, Schleiden B, Robert Hooke C, Schwann D, Leeuwenhoek

104, Which of the following organelles settle out last when homogenized cells are centrifuged?

A, Chloroplast B, Nucleus C, Mitochondria D, ribosome

105, Through which process can inorganic ions from the soil be absorbed in to the root hairs?

A, Dehydration B, Diffusion C, Active transport D, Osmosis

106, Of the following models describing the nature of the cell membrane, which one was proposed before all the others?

A, The sandwich model B, Fluid mosaic model

C, The unit membrane model D, The phospholipid bilayer model

107, Cell organelles that contain hydrolytic enzymes are called?

A, Perixosomes B, lysosomes C, Mesosomes D, Ribosomes

108, Which part of the cell makes necessary changes, packages and secretes protein?

A, Gollgy apparatus B, Endoplasmic reticulum

C, Mitochondria D, cell wall

109, The organelles of the cell which is concerned with the synthesis of lipid in addition to being association with carbohydrate metabolism and detoxification is

A, Golgy body B, thylakoid membrane

C, Rough endoplasmic reticulum D, smooth endoplasmic reticulum

110, Which of the following is not a requirement for a molecule to directly diffuse across the cell membrane?

A, Small size B, Non polarity C, Large size and polarity D, Lipid solubility

111, If homogenate eukaryotic cell is spun in a centrifuge, which of the cellular organelle settle out first?

A, Ribosome B, Nucleus C, Chloroplast D, Mitochondria

112, Which of the following is not function of lysosome?

A, Autophagy B, Autolysis ? C, Synthesis D, Digestion

113, Organelles in the cytoplasm that are known as power of the cell are?

A, Mitochondria B, Chloroplast C, Ribosome D, Cellulose

114, Through which of the following methods can blood be separated in to its cellular and fluid parts?

A, Separating funnel B, Centrifuging C, Factional distillation D, Simple distillation

115, Which of the following has the highest water potential than all the others?

A, Pure liquid B, different solution

C, Animal cells D, Different suspensions

116, Which of the following happens if nucleolus is missing in the cell?

A, The nuclear pole will be blocked

B, Ribosomal function will be disrupted

C, DNA synthesis will be enhanced

D, Endoplasmic reticulum will be unfolded

Answer

No.	**Answer**	**No.**	**Answer**	**No.**	**Answer**	**No.**	**Answer**	**No.**	**Answer**
1	B	26	B	51	C	76	D	101	C
2	B	27	D	52	A	77	A	102	D
3	C	28	C	53	B	78	D	103	D

4	B	29	C	54	B	79	B	104	D
5	B	30	A	55	D	80	C	105	C
6	A	31	D	56	C	81	D	106	A
7	C	32	C	57	B	82	A	107	B
8	D	33	B	58	B	83	D	108	A
9	D	34	C	59	A	84	C	109	D
10	D	35	C	60	C	85	A	110	C
11	B	36	A	61	B	86	D	111	B
12	B	37	B	62	D	87	A	112	C
13	D	38	B	63	A	88	A	113	A
14	C	39	D	64	C	89	A	114	B
15	B	40	A	65	C	90	A	115	C
16	B	41	D	66	D	91	C	116	B
17	C	42	C	67	D	92	C	117	
18	D	43	B	68	B	93	C	118	
19	B	44	D	69	B	94	B	119	
20	D	45	C	70	C	95	D	120	
21	B	46	D	71	A	96	B	121	
22	C	47	C	72	A	97	C	122	
23	B	48	D	73	B	98	C	123	
24	C	49	A	74	C	99	B	124	
25	C	50	A	75	D	100	A	125	