ROYAL CIVIL SERVICE COMMISSION

CIVIL SERVICE COMMON EXAMINATION (CSCE) 2009

EXAMINATION CATEGORY: TECHNICAL

PAPER II: GENERAL SUBJECT KNOWLEDGE -MEDICAL

Total marks 100 Time 90 minutes

1. Read the following instructions before you proceed to answer the questions.
2. The question paper is divided into two sections: A and B
3. Section A is multiple choice questions (70 marks). Choose the one BEST answer to the question.
4. Section B is short answer question (30 marks). Answer the question to the point. Try to fit the answer in the space provided. In case you need extra paper, ask the examiner.

5. Number of answer sheets attached [ ]

Section A: Multiple choice question (70 marks)

CIRCLE THE **ONE** MOST CORRECT OR APPROPRIATE ANSWER (1 mark each for every question)

1. All the following are true characteristics of animal cells except
   a. Centrosome is present
   b. Has cell wall
   c. Do not contain plastids
   d. Cytoplasm fills almost the entire cell

2. Water is conducted upwards from the roots to the trunks of the trees mainly through:
   a. Phloem
   b. Roots
   c. Xylem
   d. Cortex

3. Sex of the child depends upon the kind of the sperm that fertilizes the egg. All eggs contain:
   a. Only X chromosome
   b. Only Y chromosome
   c. Only XY chromosome
   d. Only XX chromosome

4. Transpiration is
   a. Bleeding in plants
   b. Loss of water vapour from the aerial part of the plants
   c. Guttation of water from the leaves of the plant
   d. Osmosis of water from the leaves

5. What is not required in the photosynthesis?
   a. Oxygen
   b. Carbon dioxide
   c. Light energy
   d. Water

6. When a crystal of potassium permanganate is placed in a beaker containing water, the potassium permanganate slowly disappears into the water. This is because of the process called:
   a. Osmosis
   b. Ex-osmosis
   c. Diffusion
   d. Imbibition

7. Place a peeled potato for a period of 1 hour in the solution containing 20% sugar. What would your observation be:
   a. There will not be any change in the size of potato
   b. Potato increases in size because it absorbs water
   c. Potato shrinks because of the exosmosis of water from the potato
   d. Potato shrinks in size because of endosmosis

8. Central nervous system consist of :
   a. Brain and the spinal cord
   b. Brain
   c. Somatic nervous system
   d. Autonomic and somatic nervous system

9. Human brain is the largest in proportion to the size of the body among all the animals and on the average weight is:
   a. 2.0 kg
   b. 2.5 kg
   c. 3.0 kg
   d. Brain and the spinal cord

10. The number of major sense organs in our body are:
   a. One
   b. Three
   c. Five
   d. Four

11. When our eyes shift the vision from a near by object to a distant object, it accommodates by
    a. Flattening the lens
    b. Thickening the lens
    c. Rotating the lens
    d. Makin g the lens more convex

12. Ear ossicles consist of
    a. Malleus, incus and stapes
    b. Pinna, ear drum and auditory canal
    c. Oval window and round window
    d. Cochlea and semi circular canals

13. The taste buds for the bitter tastes are primarily located in the :
    a. Tip of the tongue
    b. Side of the tongue
    c. Back of the tongue
    d. Middle of the tongue

14. Following are the hormones produced by the pancreas:
    a. Insulin and thyroxine
    b. Somatostatin and calcitonin
    c. Adrenalin and Glucagon
    d. Insulin, glucagon and somatostatin

15. In the development of human embryo, all human organs are developed by:
    a. Five weeks of gestation
    b. Four weeks of gestation
    c. Eight weeks of gestation
    d. Twelve weeks of gestation

16. World Health Day is observed on:
    a. December 1
    b. April 7
    c. October 28, 2009
    d. February 14

17. The kinetic energy of a 20 kg mass, moving with a speed of 4m/sec is :
    a. 320 J
    b. 680 J
    c. 160 J
    d. 80 J

18. Light travels the fastest in:
    a. Water
    b. Glass
    c. Diamond
    d. Air

19. When a scale is immersed in a bucket of water, the scale appears to be
    a. Bent downward because of reflection
    b. Bent upward because of refraction
    c. Straight because density of water and air are same
    d. Bent side ways because of movement of water in the bucket

20. A man hears his own echo from a large wall erected across the ground after 0.1 sec. (V=d/t, where v is the velocity, d is the distance, and t is the time, velocity of the sound in air is 340 m/sec).
    The distance between the wall and the man is:
    a. 34 m
    b. 51 m
    c. 18 m
    d. 17 m

21. One calorie is defined as
    a. Quantity of heat required to raise the temperature of 1 g of water by 1 degree Celsius
    b. Quantity of heat required to raise the temperature of 1 g of water from 14.5 degree Celsius to 20.5 degree Celsius
    c. Quantity of energy spent to decrease the body temperature
    d. Quantity of energy spent 1000 ml of water by 1 degree Celsius

22. Melting point of a substance
    a. Decreases by presence of impurities in it
    b. Increases by presence of impurities in it
    c. Does not depend on the impurities
    d. May decrease or increase depending on the substance

23. Evaporation of a liquid depends on all the following factors except
    a. Temperature
    b. Surface area
    c. Nature of the liquid
    d. Boiling point

24. Central core of atom is called nucleus. Nucleus contains:
    a. Protons
    b. Electrons
    c. Neutrons
    d. Neutrons and protons

25. When light of suitable wave length falls on the surface of alkali metals it results in:
    a. Emission of protons by the metals
    b. Emission of neutrons by the metals
    c. Emission of electrons
    d. Emission of electrons and neutrons

26. The bulb with carbon filament was invented by
    a. Albert Einstein
    b. Thomas Alva Edison
    c. Madam Curie
    d. Ohm

27. Which of the rays is useful for treatment of cancer?
    a. Alpha rays
    b. Beta rays
    c. Gamma rays
    d. X rays

28. All is the characteristics of parthenocarpic fruits except:
    a. Fruit is developed by fertilization
    b. Fruits are either seedless or contain empty of non-viable seeds
    c. Natural parthenocarpy found in oranges, cucumbers, and seedless grapes
    d. Are of great commercial value

29. Which of the food types mostly help in the building of the mass of the body:
    a. Carbohydrate
    b. Proteins
    c. Fats
    d. Vitamins

30. The total number of deciduous teeth in humans are:
    a. 32
    b. 20
    c. 26
    d. 14

31. Which vitamin deficiency will lead to a condition called scurvy:
    a. Vitamin A
    b. Vitamin B
    c. Vitamin C
    d. Vitamin D

32. Prevalence of goiter in Bhutan has decreased drastically due to:
    a. A good public health education on hygiene and sanitation
    b. Better access to treatment and care for goiter problems
    c. Iodization of the commercial salt
    d. Availability of the nutritious diet due to improved economic condition of the people

33. The odd combination among this set of bones is :
    a. Humerus
    b. Radius
    c. Ulna
    d. Fibula

34. A person with blood group AB has
    a. Neither A nor B antigen
    b. Antigens A and B
    c. Antigen A but not B
    d. Antigen B but not A

35. The function of the first cranial nerve corresponds to :
    a. Rotating eye ball
    b. Controlling the movement of tongue
    c. Bringing sense of smell from nasal mucosa to brain
    d. Controlling taste

36. An iron ball of mass 5kg in Thimphu, if taken to the moon will have a mass of :
    a. 5Kg
    b. 9.9 Kg
    c. 4.3 Kg
    d. 2.6 Kg

37. An earthworm breathes through a.
    a. General body surface
    b. Parapodia
    c. Trachea
    d. Skin

38. The site of the fertilization is
    a. Uterus
    b. Cervix
    c. Fallopian tube
    d. Vulva

39. The most common route of HIV transmission world wide is:
    a. Sharing needles among injecting drug use
    b. Blood transfusion
    c. Mother to child
    d. Sexual route

40. Which is not true about human heart:
    a. It is the size of the fist
    b. It is four chambered
    c. All the heart valves consists of three membranous flaps
    d. It receives oxygenated blood from a pair of coronary artery

41. The base which is not found in the nucleotide of DNA is .
    a. Adenine
    b. Guanine
    c. Thiamine
    d. Uracil

42. Among the following which is a globular proteins
    a. Hemoglobin
    b. Collagen
    c. Fibrin
    d. Keratin

43. The base which is not found in the nucleotides of RNA is
    a. Adenine
    b. Guanine
    c. Cytosine
    d. Thymine

44. In addition to carbon, hydrogen, and oxygen, the nucleic acids contain the element
    a. Nitrogen and Sulphur
    b. Nitrogen and phosphorous
    c. Phosphorous and Sulphur
    d. Nitrogen phosphorous and sulphur

45. Starch is hydrolysed into maltose by the action of the enzyme
    a. Invertase
    b. Zymase
    c. Diastase
    d. Cellulase

46. An example of amorphous carbohydrate is
    a. Glucose
    b. Fructose
    c. Sucrose
    d. Starch

47. An Isomer of ethanol is
    a. Methanol
    b. Diethyl ether
    c. Acetone
    d. Dimethyl ether

48. Phenol can be converted to salicylic acid by
    a. Kolbe's reaction
    b. Rosenmund reaction
    c. Cannizaro Reaction
    d. Perkin Reaction

49. Soil bacteria converts urea finally into
    a. Nitrogen
    b. b) Ammonia
    c. Nitrites
    d. Nitrate

50. Formic acid differs from Acetic acid in being an
    a. An oxidizing agent
    b. A reducing agent
    c. A dehydrating agent
    d. A bleaching agent

51. Name the acid which is **Liquid and Non-Volatile?**
    a. Sulphuric Acid
    b. Formic Acid
    c. Oxalic Acid
    d. Phosporic Acid

52. In the reactivity series of metals which is the most reactive metal?
    a. Zinc
    b. Calcium
    c. Potassium
    d. Gold

53. The process of heating the concentrated ore to a high temperature in excess of air is called..
    a. Calcination
    b. Reduction
    c. Electro-refining
    d. Roasting

54. The carbon content of wrought Iron is between....
    a. 4-5%
    b. 0.5-1.5 %
    c. 0.05-1.7%
    d. 0.15-0.5%

55. A colorless gas, turns blue litmus faint red and when passed through lime water turns lime water milky. The gas is ....
    a. Chlorine
    b. Sulphur Di-oxide
    c. Carbon Di-oxide
    d. Nitrogen di-oxide

56. When sodium hydro-oxide reacts with calcium the precipitate is ...
    a. White curd like
    b. White Chalk like
    c. White gelatinous
    d. Pale Blue

57. When Acid Solution is added to Phenolphthalein the colour of Phenolphthalein will change to...
    a. Colourless turns to Pink
    b. Orange turns yellow
    c. Colourless remains colourless
    d. Orange turns Pink

58. A compound having its carbon atom in chains and not in closed rings originally used to describe the fats and fatty acids is called....
    a. Aliphatic Compound
    b. Alkyl Compound
    c. Cryolite
    d. Flux

59. A homogenous mixture of two or more metals (or metals and non-metals) combined in a definite proportion in their molten state is called ...
    a. Amalgan
    b. Alloy
    c. Nessler's reagent.
    d. Ammonal

60. The process of breaking down a substance into two or more substances is called....
    a. Decantation
    b. Decomposition
    c. Fermentation
    d. Reduction

61. The mode of concentration expression for a solution that is independent of temperature is
    a. Molarity
    b. Percentage (Mass/Volume)
    c. Molality
    d. Normality

62. Colligative properties (property that depends on the number of solute particles) of dilute solutions are not affected by
    a. Hydrogen bonding in solute molecules
    b. Ionic character of Solute
    c. Temperature of solution
    d. Density of the solute

63. The osmotic pressure measurements are best suited for determining the molar masses of
    a. Sparingly soluble non-volatile solutes
    b. Highly soluble non-volatile solutes
    c. Non-ionizing solutes of very low molar masses
    d. Non-Ionizing solutes of very high molar masses

64. Which one of the following does not have Hydrogen Bonding?
    a. Ethanol
    b. Liquid Ammonia
    c. Glycerol
    d. Liquid Hydrochloric Acid

65. The maximum number of Hydrogen Bonds a water (H2O) molecule can form is.....
    a. One
    b. Two
    c. Three
    d. Four

66. In thermodynamic terms a system is "that portion of the universe which is under thermodynamic study" there fore the example of an isolated system is.....
    a. Ice cold water in a thermos flask
    b. Boiling hot-water in a beaker

c. Hot water in a stoppered flask
d. A living system

67. The addition of solid potassium cyanide to pure water causes ....
a. Increase in PH
b. Decrease in PH
c. No change in PH
d. complete dissociation of Potassium cyanide

68. The cathode reaction in the electrolysis of dilute hydrochloric acid using platinum electrode involves...
a. Oxidation
b. Reduction
c. Both Oxidation and Reduction
d. Neutralization

69. In a dry cell, which is correct?
a. Zinc metal is the anode
b. Zinc metal is the cathode
c. Carbon is the anode
d. The content of the cell are perfectly dry

70. The central atom in Vitamin B12 is ...
a. Iron
b. Copper
c. Cobalt
d. Magnesium

Section B: Short questions

Answer ALL the questions in brief in the space provided below. (3 marks for each question)

1. What is the difference between mass and weight?

2. Explain why the walls of a dam are thicker at the base?

3. What is the difference between simple and compound leaf?

4. Differentiate between tendon and ligament

5. Write a short note on blood platelets

6. Describe functions of fats

7. What is marasmus?

8. What are the signs of over malnutrition?

9. Iron gets easily rusted when exposed to air. Name three metals which when coated on Iron prevents rusting

10. Find the percentage of Carbon in Carbon-dioxide?

.....GOOD LUCK.....