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UPCATET Sample Question Paper PDF

Uttar Pradesh Combined Agriculture and Technology Entrance Test (UPCATET)

Mathematics

1. Express a speed of 36 kmph in meters per second?

A. 10 mps

B. 12 mps

C. 14 mps

D. 17 mps

Answer: Option A

2. Express 25 mps in kmph?

A. 15 kmph

B. 99 kmph

C. 90 kmph

D. None

Answer: Option C

3. The speed of a train is 90 kmph. What is the distance covered by it in 10 minutes?

A. 15 kmph

B. 12 kmph

C. 10 kmph

D. 5 kmph

Answer: Option A

4. A car covers a distance of 624 km in 6 ½ hours. Find its speed?

A. 104 kmph

B. 140 kmph

C. 104 mph

D. 10.4 kmph

Answer: Option A

5. A and B complete a work in 6 days. A alone can do it in 10 days. If bothtogether can do the work in how many days?

A. 3.75 days

B. 4 days

C. 5 days

D. 6 days

Answer: Option A

6. A can do a piece of work in 4 days. B can do it in 5 days. With the assistanceof C they completed the work in 2 days. Find in how many days can C alone do it?

A. 10 days

B. 20 days

C. 5 days

D. 4 days

Answer: Option B

7. A, B and C can do a piece of work in 24, 30 and 40 days respectively. They start the work together but C leaves 4 days before the completion of the work. In how many days is the work done?

A. 15 days

B. 14 days

C. 13 days

D. 11 days

Answer: Option D

8. 5 men and 12 boys finish a piece of work in 4 days, 7 men and 6 boys do it in 5 days. The ratio between the efficiencies of a man and boy is?

A. 1:2

B. 2:1

C. 2:3

D. 6:5

Answer: Option D

9. A and B can finish a work in 16 days while A alone can do the same work in 24 days. In how many days B alone will complete the work?

A. 56

B. 48

C. 36

D. 58

Answer: Option B

10. Some persons can do a piece of work in 12 days. Two times the numberof these people will do half of that work in?

A. 3 days

B. 4 days

C. 6 days

D. 12 days

Answer: Option A

11. What number has a 5:1 ratio to the number 10?

A. 42

B. 50

C. 55

D. 62

Answer: Option B

12. Two same glasses are respectively 1/4th 1/5th full of milk. They are thenfilled with water and the contents mixed in a tumbler. The ratio of milk and water in the tumbler is?

A. 3:8

B. 9:31

C. 8:21

D. 10:27

Answer: Option B

13. A and B entered into a partnership investing Rs.25000 and Rs.30000 respectively. After 4 months C also joined the business with an investment of Rs.35000. What is the share of C in an annual profit of Rs.47000?

A. Rs.18000

B. Rs.15000

C. Rs.17000

D. Rs.14000

Answer: Option D

14. In how many years does a sum of Rs. 5000 yield a simple interest of Rs. 16500 at 15% p.a.?

A. 22

B. 24

C. 25

D. 23

Answer: Option A

15. The radius of a circle is increased by 1%. Find how much % does its area increases?

A. 1.01%

B. 5.01%

C. 3.01%

D. 2.01%

Answer: Option D

1).The Element of an electric heater is made of_____

a) Nichrome
b) Copper
c) Aluminum
d) None of these

Answer is: a)

2).When water is heated from 0^o Celsius to 100^o Celsius, the volume of water

a) Increase gradually
b) Degrease gradually
c) First increase, then decrease
d) First decrease , then increase

Answer is: d)

3).One mega watt hour (MWH) is equal to

a) 3.6×10^3 joule
b) 3.6×10^4 joule
c) 3.6×10^7 joule
d) 3.6×10^9 joule

Answer is: d)

4).At what temperature are the temperature on Celsius and Fahrenheit scales equal?

a) 273^o Celsius
b) - 273^o Celsius

c) - 40° Celsius

d) 40° Celsius

Answer is: c)

5).The Period of revolution round the sun is maximum by which among the following planets?

a) Mercury

b) Venus

c) Earth

d) Mars

Answer is: d)

6).Einstein got the Nobel prize for?

a) Theory of Relativity

b) Photo-electric effect

c) Polarisation

d) Radio activity

Answer is: b)

7).Galvanometer can be converted into a voltmeter by using

a) Low resistance in series

b) High resistance in series

c) Low resistance in parallel

d) High resistance in parallel

Answer is: b)

8).Gas law was given by

a) Boyle
b) Ostwald
c) Arrhenius
d) Faraday

Answer is: a)

9).Kilowatt – hour is a unit of

a) Energy
b) Power
c) Electric charge
d) Current

Answer is: b)

10).The ozone layer protects us from

a) Ultra violet rays
b) Radio waves
c) Visual radiation
d) Infrared radiation

Answer is: a)

11).What will be the temperature of the maximum if 100 gm ice at 0^oC is put in 100 gm water at 80^oC? (Latent heat of ice = 80 cal / gm)

a) 35^oC
b) 45^oC
c) 60^oC
d) 0^oC

Answer is: d)

12).Fire in the diesel engine is produces by which of the following?.

a) Compression
b) Spark plug
c) Friction
d) Self starter

Answer is: a)

13).With an increase in pressure the melting point of max will.

a) Decrease
b) Increase
c) First increase and then decrease
d) Remain Unaffected

Answer is: b)

14).Which among the following is the best conductor of electricity?

a) Silver
b) Copper
c) Gold
d) Lead

Answer is: a)

15).Which among the following order of decreasing wavelengths of electromagnetic waves is correct?

I. Radio waves II. Infrared rays III. Visible Light IV. X-Rays

a) II, I, IV, III
b) I, III, II, IV
c) I, II, III, IV

d) IV, III, II, I

Answer is: c)

16).Ampere-hour is the unit of which among the following?

a) Power
b) Energy
c) Intensity of current
d) Amount of charge

Answer is: d)

17).Who discovered X-Rays?

a) Madam Curie
b) Einstein
c) Roentgen
d) J. J. Thomson

Answer is: c)

18).Which among the following are primary colors?

a) Red, Green, Blue
b) Blue, Yellow, Green
c) Red, Magenta, Yellow
d) Yellow, Violet, Blue

Answer is: a)

19).At what temperature will the density of water be maximum?

a) 0^{o} C
b) 32^{o} C
c) - 4^{o} C
d) 4^{o} C

Answer is: d)

20).Persistence of vision is the principle behind?

a) Camera
b) spectroscope
c) Cinema
d) Periscope

Answer is: c)

21).Which metal is commonly used for making an electromagnet?

a) Copper
b) Iron
c) Nickel
d) Cobalt

Answer is: b)

22).Light from the laser is_____.

a) Monochromatic
b) Composite
c) Dispersed light
d) Incoherent

Answer is: a)

23).Choke is used to_____.

a) Reduce the current in AC circuit
b) Reduce the current in DC circuit
c) Convert AC to DC

d) Convert DC to AC

Answer is: a)

24).In a standing wave the distance between a node and adjacent antinode is_____.

a) 3λ / 2
b) λ / 2
c) λ / 4
d) 3λ / 4

Answer is: c)

25).A telescope and microscope differ in that_____.

a) Both are different instruments
b) Telescope's eyepiece with longer focal lengths that the oblective
c) Telescope has objective of large focal length and eyepiece of smaller focal lengths
d) None of these

Answer is: c)

26).The weight of a body is_____.

a) The same everywhere on the surface of the earth
b) Maximum at the poles
c) Maximum at the equator
d) More on the hills than in the plains

Answer is: b)

27).At what temperature a body will not radiate any heat energy?

a) 0^o C
b) 273^o C

c) 100^{o} C

d) -273^{o} C

Answer is: d)

28).Electromagnetic spectrum consists of the following radiations-

I. X-rays

II. Gamma rays

III. Ultraviolet radiations

IV. Infrared radiations

Choose the correct order of code in the increasing order of their frequency:

a) I, III, II, IV

b) II, I, III,IV

c) IV, III, I, II

d) IV, II, III, I

Answer is: c)

29).Only one part of moon can be seen from earth because____.

a) Only one part reflects light

b) It does not rotate

c) The period of rotation and revolution are equal

d) None of these

Answer is: c)

30).Parsec is a unit of_____.

a) Pressure

b) Astronomical distance

c) Time

d) Energy

Answer is: b)

31).In which among the following is alternating current not used?

a) Refrigeration
b) Heat production
c) Electroplating
d) Radio detection

Answer is: c)

32).Blisters are formed more rapidly by the steam of boiling water in comparision to boiling water itself because_____.

a) Temperature of the stream is higher
b) Stream enters the body pores rapidly
c) Stream is a gas and rapidly covers the body
d) Stream has latent heat

Answer is: d)

33).An ice cube is floating on the surface of water: How will the water level be affected by melting of this ice cube?

a) Water level will be raised
b) Water level will go down
c) Water level will remain the same
d) Water level will first rise up then it will go down

Answer is: c)

34).What will be the effect on gravitational acceleration if the earth suddenly stops its rotation?

a) It will reduce at the poles

b) It will increase at the poles

c) It will decrease at the equator
d) It will increase at the equator

Answer is: b)

35).Ohmic conductor among the following is_____.

a) Transistor

b) Thermal value

c) Electrolyte

d) Constantum

Answer is: d)

36).One Kilo Calorie heat will be equal to_____.

a) 4.2 joule

b) 4.2×10^2 Joule

c) 4.2×10^3 Joule

d) 4.2×10^4 Joule

Answer is: c)

37).Ball pen works on the principle of_____.

a) Viscosity

b) Boyle's Law

c) Gravitational force

d) Capillarity and surface tension

Answer is: d)

38).The apparatus used in submarines to give clear view of the objects on the surface of the ocean or ground is known as_____.

a) Periscope

b) sectant

c) stereoscope

d) telescope

Answer is: a)

39).Growth of the baby in the uterus is found using_____.

a) X-rays

b) Gamma rays

c) Ultra sound

d) Ultra Violet rays

Answer is: c)

40).The form of matter are_____.

a) 3

b) 4

c) 5

d) 7

Answer is: a)

41).The centre of the Newton's rings pattern is dark since_____.

a) The light undergoes a phase change π

b) The glass plate plano-convex lens

c) The light undergoes a phase change 2 π

d) The light undergoes a phase change π/2

Answer is: a)

42).If a red-green flag is seen in green light it appears to be of which of the following colour?

a) Green
b) Black
c) Black - Green
d) Red - Black

Answer is: c)

43).A moving electric charge produces_____.

a) Only electric field
b) Only Magnetic field
c) Both electric and magnetic field
d) Either electric or a magnetic field

Answer is: c)

44).Which among the following order of decreasing wavelengths of electromagnetic waves are correct?

I. Radio waves

II. Infrared rays

III. Visible light

IV. X-rays

Choose the answer from the following code:

a) II, I, IV, III
b) I, III, II, IV
c) I, II, III, IV
d) IV, III, II, I

Answer is: c)

45).Which among the following is the surface to surface missile that is made in India?

a) Dharti
b) Akash
c) Prithivi
d) Naag

Answer is: c)

46).Lightning conductors are made up of_____.

a) Iron
b) Aluminium
c) Copper
d) Steel

Answer is: c)

47).The I.C Chip used in a computer is made up of_____.

a) Silicon
b) Chromium
c) Gold
d) Lead

Answer is: a)

48).Which planet is nearest to the earth?

a) Mercury
b) Jupiter
c) Venus
d) Mars

Answer is: d)

49).Which among the following quantities is scalar?

a) Velocity
b) Acceleration
c) Work
d) Force

Answer is: a)

50).Nichrome wire is used in an electric heater because_____.

a) It has high resistance
b) It has high melting point
c) It can resist a current upto approx 5 amperes
d) For all of the above reasons

Answer is: d)

CHEMISTRY

1). Solutions are classified into aqueous and non-aqueous solutions, based on_____.

a) Nature of solute particles

b) Nature of solvent

c) Size of the particles

d) Thickness of solvent

Answer is: b)

2). The solvent used to prepare aqueous solutions is_____.

a) Water

b) benzene

c) kerosene

d) petrol

Answer is: a)

3). A true solution does not show Tyndall effect, because of the_____.

a) Nature of solvent

b) Amount of solute

c) Size of the particles

d) Nature of solute

Answer is: c)

4). Tyndall effect is exhibited by_____.

a) True solutions

b) Suspensions

c) Colloidal solutions

d) Crystals

Answer is: c)

5). Tyndall effect is producted by_____.

a) True solutions of light

b) Scattering of light

c) Refraction of light

d) Movement of particles

Answer is: b)

6). The particle size in a colloidal solution is_____.

a) 1 Å – 10 Å

b) 10 Å - 2000 Å

c) More than 2000 Å

d) Less than 1 Å

Answer is: b)

7). The particle size in a suspension is_____.

a) 1 Å – 10 Å

b) 10 Å - 2000 Å

c) More than 2000 Å

d) Less than 1 Å

Answer is: c)

8). A solution which has more of solute, at a given temperature than that of saturated solution is called a_____.

a) Super saturated solution

b) Unsaturated solution

c) Colloidal solution

d) suspension

Answer is: a)

9). Chalk powder in water is an example of_____.

a) Saturated solution

b) Unsaturated solution

c) suspension

d) Colloidal solution

Answer is: c)

10). The particle size of the solute in true solution is_____.

a) 1 Å – 10 Å b)

10 Å - 100 Å

c) 100 Å - 1000 Å

d) More than1000 Å

Answer is: a) 11).Milk

is a_____.

a) True solution
b) Colloidal solution
c) suspension
d) saturated solution

Answer is: b)

12).Nitrogen in soil is an example for_____.

a) True solution
b) saturated
c) super saturated
d) unsaturated

Answer is: b)

13).Fog is a solution of_____.

a) Liquid in gas
b) Gas in liquid
c) Solid in gas
d) Gas in gas

Answer is: a)

14).Soda water is a solution of_____.

a) Liquid in gas
b) Gas in liquid
c) Solid in gas
d) Gas in gas

Answer is:b

15).Blood is an example of_____.

a) True solution
b) Colloidal solution
c) Saturated solution
d) Suspension

Answer is: b)

16).The dispersed phase in a colloidal solution is_____.

a) Solute
b) Solution
c) Suspension
d) Mixture

Answer is: a)

17).Sugar and Salt solutions are_____.

a) Heterogeneous mixtures
b) True solutions
c) Colloidal solutions
d) Suspensions

Answer is: b)

18).Brownian movement explains the_____property of colloidal solutions.

a) optical

b) electrical

c) kinetic

d) mechanical

Answer is: c)

19).In aqueous solutions, the solvent used is_____.

a) benzene

b) ether

c) alcohol

d) water

Answer is: d)

20).The solution in which saturation is not achieved is called_____.

a) Super saturated

b) Unsaturated

c) Saturated

d) Suspended

Answer is:b)

21).Cheese is a colloidal solution of_____.

a) Solid in solid

b) Liquid in solid

c) Solid in liquid

d) Gas in solid

Answer is:b)

22).Cork is a colloid of_____.

a) Solid in solid

b) Liquid in solid

c) Solid in liquid

d) Gas in solid

Answer is:d)

23).Smoke is a colloid of_____.

a) Solid in solid

b) Liquid in solid

c) Solid in liquid

d) Solid in Gas

Answer is:d)

24).The saturation temperature for 20.7g of $CuSO_4$ soluble in water is_____.

a) 10^0C

b) 100^0C

c) 20^0C

d) 30^0C

Answeris:c)

25).The solubility level of an aqueous solution of NaCl at 25^0C is_____.

a) 20g

b) 36g

c) 95g

d) 8g

Answeris:b)

26).The increase in the solubility of Sodium halides, in water at 25^0C is_____/

a) NaCl > NaBr > Nal

b) NaBr > Nal > NaCl

c) Nal > NaBr > NaCl

d) NaCl = NaBr > Nal

Answer is:c)

27).Solubility of CaO in water is a_____.

a) Chermic

b) endothermic

c) exothermic

d) hypothermic

Answer is:c)

28).According to Henry's Law, in gases, an increase in pressure increase_____.

a) Solubility

b) saturation

c) volume

d) viscosity

Answeris: a)

29).Deep sea divers use mixture of_____.

a) Helium - Oxygen

b) Nitrogen - Oxygen

c) Hydrogen - Nitrogen

d) Helium - Nitrogen

Answer is:a)

30).The continuous random motion of colloidal particles is called_____.

a) Brownian movement

b) Zig zag movement

c) Continuous movement

d) Tyndall effect

Answer is:a)

31).On increasing the temperature, the solubility of the solute in the solvent_____.

a) Increase

b) Decrease

c) Change

d) Does not change

Answer is: a)

32).Which law relates solubility of solvents with pressure?

a) Hess' law

b) Henry's law

c) Charles' Law

d) Boyle's law

Answer is: b)

33).When sunlight passes through the window of your house, the dust particlesscatter the light making the path of the light visible. This phenomenon is called as_____.

a) Brownian motion
b) Tyndall effect
c) Raman effect
d) Uniform motion

Answer is: b)

34).The Greek term 'atomos' means_____.

a) divisible
b) indivisible
c) macro molecule
d) soft sphere

Answer is:b

35).Isotopes are the atoms of same element, with same atomic number. But with different.

a) Atomic number
b) Mass number
c) Number of electrons
d) Chemical nature

Answer is: b)

36).$_{6}C^{12}$ and $_{6}C^{14}$ are_____.

a) Isotopes
b) Isobars
c) Isomers
d) Molecules

Answer is: a)

37).Atoms of different elements possessing in the same atomic mass are called _____.

a) Isotopes
b) Isobars
c) Isomers
d) Molecules

Answer is: c)

38).Atoms of different elements with same number of neutrons.

a) Isotopes
b) Isomers
c) Isobars
d) Isotones

Answer is: d)

39).Atomicity of oxygen in ozone molecule is_____.

a) 1
b) 2
c) 3
d) 4

Answer is: c)

40).Atomicity of primary gases is_____.

a) 1
b) 2
c) 3
d) 4

Answer is: b)

41).In the Beginning of the 20th century, Matter Wave concept was introduced by_

_____.

a) Broglie

b) Avogadro

c) Heisenberg

d) Einstein

Answer is: a)

42).The Principle of Uncertainty was introduced by_____.

a) Broglie

b) Avogadro

c) Heisenberg

d) Einstein

Answer is: c)

43).$_{18}Ar^{40}$ and $_{20}Ca^{40}$ are considered as_____.

a) Isotopes

b) Isomers

c) Isobars

d) Isotones

Answer is: a)

44).The compound which does not show simple ratio of atoms, is_____.

a) Benzene

b) Acetylene

c) Hydrogen

d) Sucrose

Answer is: d)

45).Avogadro's hypothesis relates volume of gases and_____.

a) mass

b) temperature

c) pressure

d) number of molecules

Answer is: d)

46).Atomicity of an element is_____.

a) Valency of an element

b) Atomic mass

c) Number of atoms in one molecule of an element

d) Isotope of an element

Answer is: c)

47).Atomicity is given by_____.

a) Mass/molecular mass

b) Mass of the element

c) Molecular mass X atomic mass

d) Molecular mass / atomic mass

Answer is: d)

48).The atoms of $_6C^{13}$ and $_7N^{14}$ areconsidered as_____.

a) Isotopes

b) Isomers

c) Isobars

d) Isotones

Answer is: d)

49).Isotones are the atoms of different elements having_____.

a) Same mass number

b) Same atomic number

c) Same number of neutrons

d) Same number of electrons

Answer is: c)

50).Atomicity of Phosphorous is_____.

a) 2

b) 3

c) 4

d) 5

Answer is: c)

Science Bowl Questions – Biology, Set 2

1. Multiple Choice: The adult human of average age and size has approximately how many quarts of blood? Is it:

a) 4
b) 6
c) 8
d) 10

ANSWER: B -- 6

2. Multiple Choice: Once the erythrocytes enter the blood in humans, it is estimated that they have an average lifetime of how many days. Is it:

a) 10 days
b) 120 days
c) 200 days
d) 360 days

ANSWER: B -- 120 Days

3. Multiple Choice: Of the following, which mechanisms are important in the death of erythrocytes (pron: eh-rith-reh-sites) in human blood? Is it

a) phagocytosis (pron: fag-eh-seh-toe-sis)
b) hemolysis
c) mechanical damage
d) all of the above

ANSWER: D -- all of the above

4. Multiple Choice: Surplus red blood cells, needed to meet an emergency, are MAINLY stored in what organ of the human body? Is it the:

a) pancreas
b) spleen
c) liver
d) kidneys

ANSWER: B – spleen

5. Multiple Choice: When a human donor gives a pint of blood, it usually requires how many weeks for the body RESERVE of red corpuscles to be replaced? Is it:

a) 1 week
b) 3 weeks
c) 7 weeks
d) 21 weeks

ANSWER: C -- 7 weeks

6. Short Answer: There are three substances found in human blood which carry oxygen and which begin with the letter "H". Name two of these substances.

ANSWER: Hemoglobin, Hemocyanin, Hemerythrin

7. Multiple Choice: The several types of white blood cells are sometime collectively referred to as:

a) erythrocytes (pron: eh-rith-row-cites)
b) leukocytes (pron: lew-kah-cites)
c) erythroblasts (pron: eh-rith-rah-blast)
d) thrombocytes (pron: throm-bow-cites)

ANSWER: B -- leukocytes

8. Multiple Choice: The condition in which there is a DECREASE in the number of white blood cells in humans is known as:

a) leukocytosis (pron: lew-kO-sigh-toe-sis)
b) leukopenia (pron: lew-kO-pea-nee-ah)
c) leukemia (pron: lew-kee-me-ah)
d) leukohyperia (pron: lew-kO-high-per-e-ah)

ANSWER: B -- leukopenia

9. Multiple Choice: The smallest of the FORMED elements of the blood are the:

a) white cells
b) red cells
c) platelets
d) erythrocytes

ANSWER: C – platelets

10. Multiple Choice: Which of the following statements concerning platelets is INCORRECT. Platelets:

a) contain DNA
b) are roughly disk-shaped
c) have little ability to synthesize proteins
d) are between 1/2 and 1/3 the diameter of the red cell

ANSWER: A -- contain DNA

11. Short Answer: What is the primary function of the platelets in huma blood?

ANSWER: clotting or blocking leaks from blood vessels

12. Multiple Choice: When a wound occurs in humans, the platelets in the blood activate a substance which starts the clotting process. The substance which starts the clotting is:

a) adenosine (pron: ah-den-ah-seen)
b) histamine
c) lecithin (pron: less-ah-thin)
d) thrombin

ANSWER: D -- Thrombin

13. Multiple Choice: When looking at the cross section of the human tibia, one finds the RED marrow in the:

a) medullary cavity
b) cancellous bone
c) periosteum
d) epiphysis

ANSWER: A -- medullary cavity

14. Multiple Choice: Lengthening of long bones in humans occurs in a particular area of the bone. This area is called the:

a) medullary canal
b) cancellous bone
c) periosteum (pron: per-E-ahs-tee-em)
d) epiphysis (pron: eh-pif-eh-sis)

ANSWER: D – Epiphysis

15. Multiple Choice: The part of the human brain which is an important relay station for the sensory impulses and also is the origin of many of the involuntary acts of the eye such as the narrowing of the pupil in bright light is the:

a) hypothalamus
b) midbrain
c) corpus callosum
d) cerebellum

ANSWER: B -- Midbrain

16. Multiple Choice: In the human brain, body temperature, metabolism, heart rate, sexual development, sleep and the body's use of fat and water are influenced by this region of the brain. This region of the brain is the:

a) hypothalamus
b) midbrain
c) corpus callosum
d) cerebellum

ANSWER: A -- hypothalamus

17. Multiple Choice: In which cerebral lobes is the speech center located? Is it the:

a) frontal
b) parietal
c) temporal
d) occipital

ANSWER: A -- frontal

18. Multiple Choice: In most axons, the myelin sheath is interrupted at intervals of about 1 millimeter or more. These interruptions are called the:

a) glial
b) nodes of Ranvier (pron: ron-vee-ay)
c) collaterals
d) nodes of Babinet

ANSWER: B -- Nodes of Ranvier

19. Short Answer: Mosses and liverworts comprise this subdivision of plants. Name this plant subdivision.

ANSWER: Bryophytes (pron: bry-eh-fites) or Bryophyta

20. Short Answer: This disease, caused by infection with the gram-negative Yersinia pestis, is transmitted by fleas from rats to humans What is the more common name for this disease?

ANSWER: Bubonic Plague or Black Death

21. Short Answer: In the mammalian body, this element plays many important roles. Try to identify this element with the fewest number of clues. This element is required to insure the integrity and permeability of cell membranes, to regulate nerve and muscle excitability, to help maintain normal muscular contraction, and to assure cardiac rhythmicity. It also plays a essential role in several of the enzymatic steps involved in blood coagulation and is the most important element of bone salt. Name this element.

ANSWER: Calcium

22. Multiple Choice: What eight-letter name starting with the letter "O" is given to that branch of medical science concerned with the study of tumors?

ANSWER: Oncology

23. Short Answer: In the more highly developed animals, such as humans this gas is used to regulate the activity of the heart, the blood vessels, and the respiratory system. WORKING MUSCLES PRODUCE A LARGE AMOUNT OF THI SUBSTANCE. Narcosis due to this gas is characterized by mental disturbances which can include confusion, headache, low blood pressure and hypothermia. Name this gas.

ANSWER: Carbon Dioxide or CO2

24. Multiple Choice: Cariology is the study of the:

a) human heart
b) tooth decay
c) kidneys
d) liver

ANSWER: B -- Tooth Decay

25. Short Answer: The larval form of butterflies and moths is more commonly known as what?

ANSWER: caterpillar

26. Short Answer: Name the sac-like, blind pouch of the large intestine, situated below the level of the junction of the small intestine into the side of the large intestine. At the lower portion of this pouch one finds the appendix.

ANSWER: Cecum or Caecum

27. Multiple Choice: During the final stage of cell division, the mitotic apparatus disappears, the chromosomes become attenuated, the centrioles duplicate and split, the nuclear membrane becomes reconstituted and the nucleolus reappears. This phase of cell division is known as:

a) prophase (pron: prO-phase)
b) metaphase
c) anaphase
d) telophase

ANSWER: D -- Telophase

28. Multiple Choice: In cell division, the phase following the metaphas is known as:

a) prophase
b) anaphase
c) telophase
d) extophase

ANSWER: B -- Anaphase

29. Short Answer: All cells of an organism find their lineage from a single fertilized cell. This single fertilized cell is called what?

ANSWER: Zygote

30. Multiple Choice: Name the clear watery liquid that surrounds the brain and spinal cord and fills the four cavities or ventricles of the brain.

ANSWER: Cerebrospinal Fluid

31. Multiple Choice: The order of insects which includes beetles is known as:

a) Coleoptera (pron: kO-lee-op-teh-rah)
b) Orthoptera (pron: or-tho-op-teh-rah)
c) Hymenoptera (pron: high-meh-nop-teh-rah)
d) Diptera (pron: dip-teh-rah)

ANSWER: A -- Coleoptera

32. Multiple Choice: This major protein component of connective tissue in mammals comprises most of the organic matter of skin, tendons, bones, and teeth, and occurs as fibrous inclusions in most other body structures. Is this material:

a) elastin
b) collagen
c) fatty acids
d) keratin

ANSWER: B -- collagen

33. Multiple Choice: Sickle cell anemia and Huntington's chorea are both:

a) virus-related diseases
b) bacteria-related diseases
c) congenital disorders
d) none of the above

ANSWER: C -- Congenital Disorders

34. Multiple Choice: In most species of Paramecium there are how many contractile vacuoles? Is it:

a) one
b) two
c) three
d) four

ANSWER: B – Two

35. Multiple Choice: The major fibrous proteins are:

a) peptone and edestin
b) glutelin and leucine

c) valine and lysine
d) myosin and actin

ANSWER: D -- Myosin and Actin

36. Short Answer: Name the outer portion of a stem or root, bounded externally by the epidermis, and internally by the cells of the pericycle.

ANSWER: Cortex

37. Multiple Choice: Costal cartilage:

a) attach the ribs to the sternum
b) cover the ends of the femur
c) is found in the pinna of the ear
d) forms the intervertebral disks of the backbone

ANSWER: A -- Attach the ribs to the sternum

38. Multiple Choice: From which grandparent or grandparents did you inherit your mitochondria (pron: my-toe-chon-dria)? Is it your:

a) mother's parents
b) paternal grandfather
c) grand mothers
d) maternal grandmother

ANSWER: D -- maternal grandmother

39. Multiple Choice: Which of the following are NOT part of a neuron?

a) synapse
b) axon
c) Nissl bodies
d) dendrite

ANSWER: A – SYNAPSE

40. Multiple Choice: The resting potential of a neuron is dependent on what two ions?

a) lead and calcium ions
b) calcium and phosphate ions
c) sodium and potassium ions
d) potassium and phosphate ions

ANSWER: C -- sodium and potassium ions

41. Multiple Choice: Which of the following is NOT a type of neuron?

a) sensory
b) motor
c) association
d) stimulatory

ANSWER: D -- STIMULATORY

42. Multiple Choice: Melatonin (pron: mel-eh-toe-nin) is produced by the:

a) skin

b) pineal gland
c) liver
d) pituitary gland

ANSWER: B -- PINEAL GLAND

43. Multiple Choice: Which of the following statements is TRUE of insulin? Is it:

a) secreted by the pancreas
b) a protein
c) involved in the metabolism of glucose
d) all of the above

ANSWER: D -- ALL OF THE ABOVE

44. Multiple Choice: Select the hormone INCORRECTLY paired with its target.

a) TSH - thyroid gland
b) ACTH - anterior pituitary
c) LH - ovary or testis
d) MSH - melanocytes (pron: meh-lan-o-cite)

ANSWER: D -- MSH – MELANOCYTES

45. Multiple Choice: Which of the following tissues secrete hormones?

a) pancreas
b) ovaries
c) gastro-intestinal tract
d) all of the above

ANSWER: D -- ALL OF THE ABOVE

46. Multiple Choice: Which of the following structures is directly attached to the ovary?

a) oviduct
b) uterus
c) suspensory ligaments
d) vagina

ANSWER: C -- SUSPENSORY LIGAMENTS

47. Multiple Choice: Fertilization of the ovum by the sperm usually occurs in the:

a) oviduct
b) vagina
c) uterus
d) ovary

ANSWER: A -- OVIDUCT

48. Multiple Choice: The corpeus luteum secretes:

a) HCG
b) LH
c) FSH
d) progesterone

ANSWER: D -- PROGESTERONE

49. Multiple Choice: Which of the following does sperm NOT travel through?

a) ureter
b) urethra
c) vas deferens
d) epididymus

ANSWER: A – URETER

50. Multiple Choice: The placenta in humans is derived from the:

a) embryo only
b) uterus only
c) endometrium and embryo
d) none of the above

ANSWER: C -- ENDOMETRIUM AND EMBRYO

51. Multiple Choice: The number of mature gametes resulting from meiosis in the female is:

a) 1
b) 2
c) 3
d) 4

ANSWER: A -- 1

52. Multiple Choice: Synapsis and crossing over of chromosomes occurs in which phases of meiosis?

a) Interphase
b) Prophase
c) Meterphase
d) Teleophase

ANSWER: B -- PROPHASE

53. Multiple Choice: A layer of dead skin cells is found in the:

a) subcutaneous tissue
b) dermis
c) epidermis
d) no dead cells are in the skin

ANSWER: C -- EPIDERMIS

54. Multiple Choice: Glial (pron: glee-el) cells are found in the:

a) muscular system
b) digestive system
c) endocrine system (pron: en-de-kren)

d) nervous system

ANSWER: D -- NERVOUS SYSTEM

55. Multiple Choice: Myelin sheaths are found:

a) surrounding tendons
b) covering the brain
c) covering muscles
d) around axons of neurons

ANSWER: D -- AROUND AXONS OF NEURONS

56. Multiple Choice: Which of the following is an INCORRECT statement about the parasympathetic system?

a) It increases digestive action.
b) It is the fight or flight system.
c) slows breathing rate
d) establishes resting state

ANSWER: B -- IT IS THE FIGHT OR FLIGHT SYSTEM.

57. Multiple Choice: Which of the following is NOT a component of the human axial skeleton?

a) sternum
b) vertebral column
c) tarsals
d) skull

ANSWER: C -- TARSALS

58. Multiple Choice: Phalanges are found in the:

a) feet
b) skull
c) hip
d) chest

ANSWER: A – FEET

59. Multiple Choice: The phase of contraction of a muscle occurs when:

a) tropomyosin binds and releases actin
b) myosin binds and releases actin
c) actin binds and releases myosin
d) none of the above

ANSWER: B -- MYOSIN BINDS AND RELEASES ACTIN

60. Multiple Choice: Select the INCORRECT statement concerning the muscular system.

a) Bones contact other bones at joints.
b) Flexors decrease the angle of a joint.
c) Adductors move a limb away from the midline.
d) Tendons attach muscle to bone.

ANSWER: C -- ADDUCTORS MOVE A LIMB AWAY FROM THE MIDLINE.

61. Multiple Choice: Which type of muscle is a syncytium (pron: sin-sish-E-um)?

a) skeletal
b) cardiac
c) smooth
d) all of the above

ANSWER: A -- SKELETAL

62. Multiple Choice: When the potential difference across a membrane of a neuron equals the threshold, what results?

a) movement of the membrane
b) action potential
c) relaxation
d) contraction

ANSWER: B -- ACTION POTENTIAL

63. Multiple Choice: What ions determine the resting potential of a nerve?

a) sodium and calcium
b) calcium and copper
c) potassium and calcium
d) sodium and potassium

ANSWER: D -- SODIUM AND POTASSIUM

64. Multiple Choice: Which structure does NOT play a part in the motion of cells?

a) microvilli
b) cilia
c) flagella
d) pseudopodia

ANSWER: A -- MICROVILLI

65. Multiple Choice: Bacteriophage (pron: back-teer-e-o-faj) are:

a) bacteria
b) bacteria precursors
c) viruses
d) agents which cause the production of bacteria

ANSWER: C -- VIRUSES

66. Multiple Choice: Which of the following is NOT a mode of genetic exchange within a bacterial population?

a) conjugation
b) transduction
c) transformation
d) translation

ANSWER: D -- TRANSLATION

67. Multiple Choice: The blastula develops into the:

a) gastrula

b) morula
c) endoderm
d) zygote

ANSWER: A -- GASTRULA

68. Multiple Choice: Tissue differentiation begins at which stage?

a) zygote
b) morula
c) blastula
d) gastrula

ANSWER: D – GASTRULA

69. Multiple Choice: The nervous system develops from which germ layer?

a) ectoderm
b) mesoderm
c) endoderm
d) none of the above

ANSWER: A -- ECTODERM

70. Multiple Choice: During inspiration, the diaphragm moves:

a) down by contraction
b) down by relaxation
c) up by contraction
d) up by relaxation

ANSWER: A -- DOWN BY CONTRACTION

71. Multiple Choice: The valve between the right ventricle and the pulmonary artery is the:

a) mitral valve
b) semilunar valve
c) bicuspid valve
d) tricuspid valve

ANSWER: A -- SEMILUNAR VALVE

72. Multiple Choice: Which of the following is NOT a function of the kidney?

a) excretion of urea
b) regulation of fluids and electrolytes
c) elimination of toxic substances
d) defecation

ANSWER: D -- DEFECATION

73. Multiple Choice: When CO2 (carbon dioxide) is dissolved in water, it yields a solution that:

a) has acidic properties
b) has basic properties
c) is neutral

ANSWER: A -- HAS ACIDIC PROPERTIES

74. Multiple Choice: Digestion of carbohydrates begins where?

a) small intestines
b) colon
c) mouth
d) stomach

ANSWER: C -- MOUTH

75. Multiple Choice: Digestion of PROTEINS begins in which of the following human organs?

a) small intestines
b) colon
c) mouth
d) stomach

ANSWER: D -- STOMACH

76. Multiple Choice: Bile has what function in digestion?

a) emulsify lipids
b) digest proteins
c) gluconeogenesis (pron: glue-ko-nee-o-gen-e-sis)
d) digest carbohydrates

ANSWER: A -- EMULSIFY LIPIDS

77. Multiple Choice: Of the following, which is a basic need of all living things?

a) oxygen gas
b) light
c) hydrogen gas
d) water

ANSWER: D -- WATER

78. Multiple Choice: A botanist is most likely to study:

a) Monerans
b) Protistans (pron: pro-tis-tans)
c) Fungi
d) Virions

ANSWER: C -- FUNGI

79. Multiple Choice: A virus must do what to reproduce?

a) form a latent virus
b) undergo transformation
c) infect a cell
d) conjugate

ANSWER: C -- INFECT A CELL

80. Multiple Choice: The chromosomes of a eukaryotic cell are located i the:

a) mitochondria (pron: my-toe-kon-dria)
b) nucleus
c) ribosome

d) endoplasma

ANSWER: B -- NUCLEUS

81. Multiple Choice: Which of the following is an example of symbiosis?

a) lichen
b) slime mold
c) amoeba
d) moss

ANSWER: A -- LICHEN

82. Multiple Choice: Oxygen enters the body of a grasshopper through:

a) gills
b) spinnerets
c) spiracles
d) book lungs

ANSWER: C -- SPIRACLES

83. Multiple Choice: A heart with a single atrium and single ventricle is a characteristic of adult:

a) amphibians
b) arthropods
c) birds
d) fish

ANSWER: D -- FISH

84. Short Answer: Name the four main excretory organs identified in man.

ANSWER: SKIN, KIDNEYS, LUNGS, INTESTINAL TRACT

85. Multiple Choice: The physical appearance and properties of an organism which is the expression of the genetic makeup is called the:

a) phenotype
b) pangenesis
c) parental trait
d) genotype

ANSWER: A -- PHENOTYPE

86. Short Answer: How many nucleotides make up a codon (pron: kO-don)?

ANSWER: 3

87. Multiple Choice: The complex of sugar polymers and proteins which are patchily distributed on the plasma membranes of animal cells is called

a) cellulose
b) chitin
c) glyocalyx
d) cytoskeleton

ANSWER: C -- GLYOCALYX

88. Short Answer: During cellular respiration, glucose is oxidized completely to what two compounds?

ANSWER: CO2 (CARBON DIOXIDE) AND H2O (WATER)

89. Multiple Choice: Organisms with cells containing two sets of parental chromosomes are called:

a) diploid
b) bisomal
c) haploid
d) autosomal

ANSWER: A – DIPLOID

90. Multiple Choice: The type of gene interaction in which the effects of one gene override or mask the effects of other entirely different genes is called:

a) linkage
b) mutation
c) pleitropy (pron: ply-ah-tropy)
d) epistasis (pron: eh-pis-te-sis)

ANSWER: D – EPISTASIS

91. Multiple Choice: For which of the following creatures is fat the greatest percentage of body weight?

a) termite
b) blue whale
c) zebra
d) female lion

ANSWER: B -- BLUE WHALE

92. Multiple Choice: Which is false regarding freshwater fish?

a) their blood is hypertonic to their environment
b) they often actively take up salt
c) they excrete urine hypotonic to the blood
d) their gills actively excrete salts

ANSWER: D -- THEIR GILLS ACTIVELY EXCRETE SALTS

93. Multiple Choice: Neutral fats, oils and waxes may be classified as:

a) lipids
b) carbohydrates
c) proteins
d) none of the above

ANSWER: A -- LIPIDS

94. Short Answer: Name three basic morphologies of bacteria.

ANSWER: (1) COCCI (COCCUS), (2) BACILLI (BACILLUS) or ROD, (3) SPIROCHETES or SPIRILLA or SPIRAL

95. Short Answer: What is the name of the 6 carbon monosaccharide that is the universal cellular fuel of plants and animals?

ANSWER: GLUCOSE (DEXTROSE)

96. Multiple Choice: During which phase of the cell cycle are normal components of the cell synthesized and assembled?

a) the M phase
b) the G1 phase
c) the S phase
d) the G2 phase

ANSWER: B -- THE G1 PHASE

97. Multiple Choice: Which of the following is NOT a characteristic shared by most of the members of the kingdom plantae?

a) they are multicellular
b) they are nonmotile
c) they possess bilateral symmetry
d) there is an alternation of haploid and diploid generations

ANSWER: C -- THEY POSSESS BILATERAL SYMMETRY

98. Short Answer: If an individual has two dissimilar alleles for a trait, with regard to that trait he is said to be:

ANSWER: HETEROZYGOUS

99. Short Answer: How many chromosomes per cell does a Down's Syndrome (trisomy 21) victim have?

ANSWER: 47

100. Short Answer: If a male who is heterozygous for an autosomal trait mates with a female who is also heterozygous for that trait, what percent of their offspring are likely to be heterozygous for this trait as well?

ANSWER: 50%

MODEL QUESTION PAPER

GENERAL STUDIES-I

Time Allowed :3 Hours **Maximum Marks:200**

PART-I

Note:- Attempt all questions. Answer should be limited to maximum of 50 words in each case. Each question carries 4 marks.

(a) Who was the main figure of Banabhatta's literary and Biographical work? What was his main contribution in Indian history?

(b) Which Harappan site has an evidence of a dockyard? What used to be handled in this dockyard?

(c) Where and when in Europe, the first Fascist regime was established?

(d) Who was popularly known in the Hill States as the 'Pahari Gandhi'? Briefly discuss his contribution in the Freedom Struggle.

(e) Give examples of two nationally protected monuments of Himachal Pradesh.

(f) Discuss the relationship between hazards, disasters and vulnerability?

(g) What are the major criteria adopted by Census of India to define an area as Urban Place?

(h) Discuss briefly the effect of El-Nino on Indian Monsoon?

(i) Discuss the major faults/ thrusts of Himachal along with their geographical extent?

(j) Which are the major rivers of the Gangas River System in Himachal Pradesh, also give the areas drained by this river system?

(k) Define kinship. Explain the degree of Kinship in sociological context.

(l) Describe how family is a primary unit of the Indian Society?

(m) What is Gandhian concept of Satyagrah?

(n) Define 'Reet'. Describe the events triggering abolition of this social evil.

(o) Name the major Tribes of Himachal Pradesh. Which regions of the State are inhabited by these tribes?

15x4=60

PART-II

Note:- Attempt all questions. Answer should be limited to maximum of 150 words in each case. Each question carries 8 marks.

(a) What is meant by the term 'dhamma'? Discuss its changing connotations?

(b) Was 1857 a revolt or India's First struggle for Independence? Explain.

(c) When was 'Begar' abolished in the Shimla Hill States? Who should be given credit for abolishing this social evil.

(d) What is meant by the term 'Sanad'? What was its legality?

(e) "The development is both the cause and effect of disaster". Discuss with examples.

(f) Discuss the major physiographic features of Peninsular India?

(g) "Vegetation is an index of climate". Discuss the statement by citing examples of different vegetation types and climate of Himachal Pradesh.

(h) What do you mean by "Unity in Diversity" in the context of Indian society?

(i) How good governance can be effective for ensuring a better public delivery services.

(j) What are the socio-economic implications of "International Fairs" of Himachal Pradesh?

10x8=80

PART-III

Note:- Attempt all questions. Answer should be limited to maximum of 500 words in each case. Each question carries 20 marks.

(a) What prompted the European powers to give up their Colonies after the Second World War? Explain with examples.

(b) Why the State of Himachal Pradesh needed a separate forest policy inspite of having a national forest policy? Give the salient features of State Forest Policy of Himachal Pradesh?

(c) Discuss various policies, laws and safety initiatives undertaken by the Government of India for women empowerment, protection and security.

3x20=60

MODEL QUESTION PAPER

GENERAL STUDIES-II

Time Allowed :3 Hours **Maximum Marks:200**

PART-I

Note:- Attempt all questions. Answer should be limited to maximum 50 words in each case. Each question carries 4 marks.

(a) What is meant by doctrine of Pith and Substance?

(b) Define double Jeopardy. Give an example of double Jeopardy.

(c) 'India is a Union of States', discuss.

(d) What do you mean by quasi-judicial bodies and what are their functions?

(e) Define sub-regionalism. Discuss its role in Himachal Pradesh.

(f) What are the components of Citizen Charters?

(g) What are the Indicators of Good Governance given by World Bank?

(h) Define poverty line. How poverty line is determined?

(i) What do you mean by Social Inclusiveness?

(j) What are the aims & objectives of The Himachal Pradesh Public Service Guarantee Act, 2011?

(k) What do you mean by Global Groupings? Why these groupings are required?

(l) Define Diaspora. What are its consequences?

(m) What do you mean by UNICEF?

(n) What are the main features of Single Line Administration in Himachal Pradesh?

(o) What initiatives have been taken by Government of Himachal Pradesh to control drug menace?

15x4=60

PART-II

Note:- Attempt all questions. Answer should be limited to maximum 150 words in each case. Each question carries 8 marks.

(a) Evaluate the concept of Equality with reference to the Constitution of India.

(b) Theory of separation of power is rarely operating in context of judiciary and legislature. Comment.

(c) Discuss the politics of Statehood in Himachal Pradesh.

(d) Ethical deficit is affecting the Good Governance in India. Discuss.

(e) "Non Government organizations have become an irresistible global force". Discuss.

(f) What are the policies initiated by Government of Himachal Pradesh for empowerment of women?

(g) Discuss the areas of conflict and cooperation between India & China.

(h) Discuss the role of World Bank in the Globalised World.

(i) To what extent Government of Himachal Pradesh has successed in protecting and promoting the interests of agrarian class?

(j) Discuss various policies formulated by the Government of Himachal Pradesh for the upliftment of Schedule Castes.

10x8=80

PART-III

Note:- Attempt all questions. Answer should be limited to maximum 500 words in each case. Each question carries 20 marks.

(a) Discuss the areas of conflict between Centre and State relations in India. Give suggestions to improve these relations.

(b) To what extent 73rd and 74th Constitutional amendments brought reforms at local level in Himachal Pradesh. Discuss in detail.

(c) What are the Indian security issues and challenges in the new World Order?

3x20=60

MODEL QUESTION PAPER
GENERAL STUDIES-III

Time Allowed :3 Hours **Maximum Marks:200**

PART-I

Note:- Attempt all questions. Answer should be limited to maximum 50 words in each case. Each question carries 4 marks.

(a) What is meant by "Demographic Dividend"? Has it benefitted Indian economy?

(b) What is Inclusive growth? Discuss latest initiatives taken by Government for ensuring Inclusive Growth.

(c) What are the implications of Skill India initiative for a hill State like Himachal Pradesh?

(d) Discuss sectoral distribution of Gross State Domestic Product in Himachal Pradesh.

(e) What is Free Trade? Is it beneficial for Indian Economy?

(f) How can space technology be utilized for the welfare of common man?

(g) Explain in Brief:-

(a) India's Independent Regional Navigation satellite system.

(b) India's Extraterrestrial exploration.

(h) Elaborate briefly the public concerns and perceptions that have triggered anti Nuclear Protests.

(i) What is the role of Geographical Indications (GI) for Economic and Human Development? Indentify the potential products of Himachal Pradesh that can be considered under GI.

(j) Why Biodiversity is important? Describe in brief factors responsible for the loss of Biodiversity in Himachal Pradesh.

(k) Elaborate briefly the salient features of National Missions for sustaining the Himalayan Eco-System.

(l) Discuss the concept of "Soil Health Card" scheme launched by GOI. How it is going to impact the farmers in India.

(m) What are endangered species? Explain in-situ and ex-situ conservation strategies.

(n) Explain how Eco-Tourism is a case of symbiotic relationship between tourist and environment.

(o) What are cultural implications of tourism in Himachal Pradesh?

15x4=60

PART-II

Note:- Attempt all questions. Answer should be limited to maximum 150 words in each case. Each question carries 8 marks.

(a) What are Repo and Reverse Repo rates? How do they affect common man?

(b) What are main features of Fiscal Responsibility and Budget Management Act, 2003.

(c) Explain main components of Atomic Energy (Amendment) Bill, 2015.

(d) Describe in brief the applications of remote sensing technology in monitoring dynamic earth resources.

(e) Describe in brief issues and concerns of hydropower development in the country.

(f) List and briefly describe wetlands of International importance in Himachal Pradesh.

(g) Explain how science & technology contributed to harness the valuable medicinal resources of India?

(h) Describe briefly ethical issues in Genetic Engineering and Transgenic mechanism.

(i) How National mission for sustainable agriculture will contribute to bring second green revolution in India? Support your answer with suitable example(s).

(j) Briefly describe the tourism potential of Himachal Pradesh.

10x8=80

PART-III

Note:- Attempt all questions. Answer should be limited to maximum 500 words in each case. Each question carries 20 marks.

(a) Discuss in detail the development of education, health, physical and financial infrastructure in Himachal Pradesh during last two decades.

(b) What are various sources of energy in India? Explain the importance and role of non conventional sources of energy as a possible solution for energy crisis.

(c) What is the relevance of Environment Impact Assessment? Briefly explain the regulatory mechanism established in the country for providing prior Environment clearance to projects and activities.

3x20=60