

Sample Questions APPLIED SCIENCE (22202)

(For Term End Online Examination, there will be 25 (15 x 1Mark questions + 10 x 2Marks questions = 35 Marks) questions each on Physics and Chemistry.)

Topic 1

1) Question: - After testing the material using destructive technique, the material _____

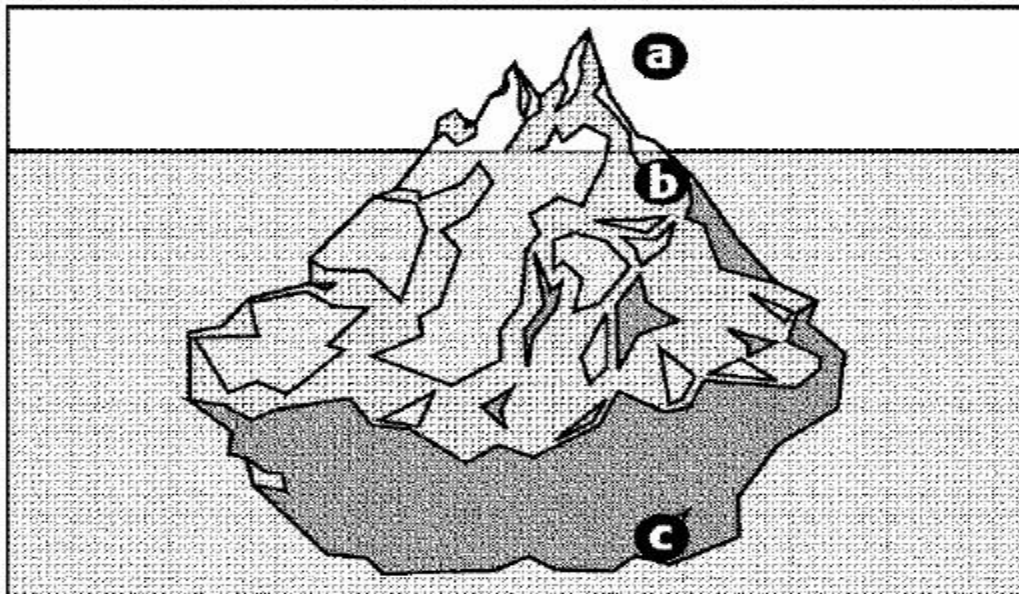
Option A: - can be used for intended purpose

Option B: - can be used for intended purpose after some correction

Option C: - cannot be used for intended purpose

Option D: - none of above

2) Question: - At which point of the iceberg, (a, b, or c) is the water pressure the greatest?



Option A: - a

Option B: - b

Option C: - c

Option D: - water pressure is same at all points a, b,c

3) Question: - Identify the correct statement from the following.

Option A: - If restoring force is more, elasticity of the material is more

Option B: - There is no relation between restoring force and elasticity of the material

Option C: - If restoring force is less, elasticity of the material is more

Option D: - If restoring force is more, elasticity of the material is less

4) Question: - The viscous force between the adjacent liquid layers is inversely proportional to the_____.

Option A: - Area of contact of two adjacent layers

Option B: - Distance between two adjacent layers

Option C: - Velocity difference between two adjacent layers

Option D: - None of the above

5) Question: - The weight of a person in air is 69kg, but weight of the same person in water may be 49kg, i.e. there is loss of weight due to _____ force.

Option A: - viscous

Option B: - gravitational

Option C: - buoyancy

Option D: - none of the above

6) Question: - Which of the following statement is true for viscosity of liquids?

Option A: - Viscosity increases with the increase in temperature

Option B: - Viscosity increases with the decrease in temperature

Option C: - Viscosity decreases with the increase in temperature

Option D: - Viscosity decreases with the decrease in temperature

Topic 2

7) Question: - A train crosses a tunnel in 25 seconds. At the entry of the tunnel, its velocity is 54 km/hr and at the exit of the tunnel, the velocity is 72 km/hr. Then the length of the tunnel is

Option A: - 237.5 m

Option B: - 337.5 m

Option C: - 437.5 m

Option D: - 537.5 m

8) Question: - A Car of mass 1500 Kg is moving with a Velocity 45km/hr find the momentum of car.

Option A: - 67500 kg-m/s

Option B: - 18750 kg-m/s

Option C: - 30 kg-m/s

Option D: - 41650 kg-m/s

9) Question: - One Watt = _____

Option A: - 1 J/s

Option B: - 10^7 erg/S

Option C: - 10^5 dyne

Option D: - both (a) and (b)

10) Question: - An aeroplane is moving horizontally with a velocity u . It drops a packet when it is at height h . The time taken by the packet in reaching the ground will be _____

Option A: - $\sqrt{\frac{2h}{g}}$

Option B: - $\sqrt{\frac{2u}{g}}$

Option C: - $f\sqrt{\frac{h}{2g}}$

Option D: - $\sqrt{\frac{2g}{h}}$

11) Question: - A point mass is projected making an acute angle with the horizontal. If angle between velocity ' v ' and acceleration ' a ' or its path is θ then _____

Option A: - $\theta = 0^\circ$

Option B: - $\theta = 90^\circ$

Option C: - $90^\circ < \theta < 0^\circ$

Option D: - $0^\circ < \theta < 90^\circ$

12) Question: - A stone is released from the window of a moving train. The path of the particle as observed by a person on the ground is _____

Option A: - straight line

Option B: - circular

Option C: - elliptical

Option D: - parabolic

Topic 3

13) Question: - The ratio of photon energy to its frequency is _____

Option A: - its speed

Option B: - its velocity

Option C: - its wavelength

Option D: - plancks constant

14) Question: - The work function of a substance is 1.6 eV. Find the longest wavelength of light that can produce photoemission from the substance.

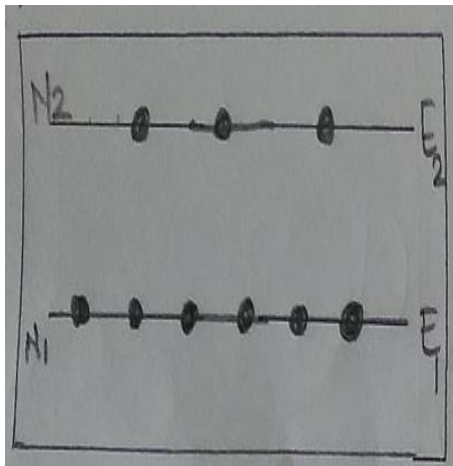
Option A: - 2900 Å

Option B: - 3867 Å

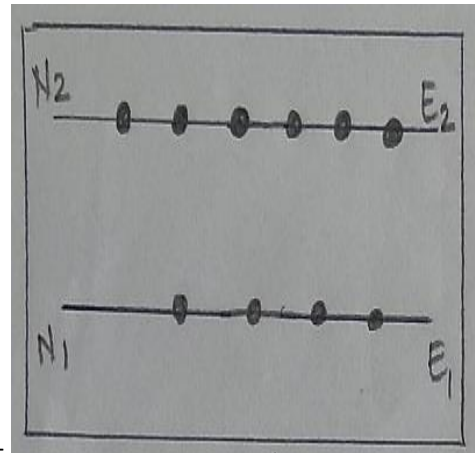
Option C: - 5800 Å

Option D: - 7734 Å

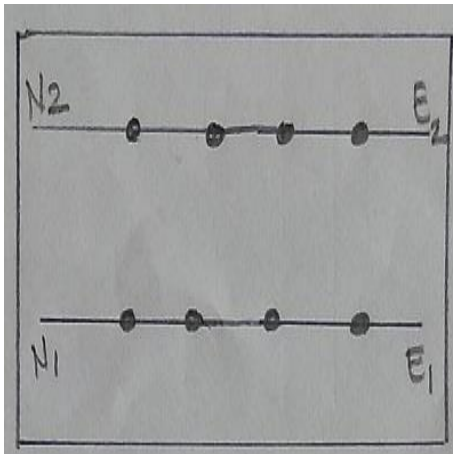
15) Question: - Out of the following which diagram explains population inversion _____



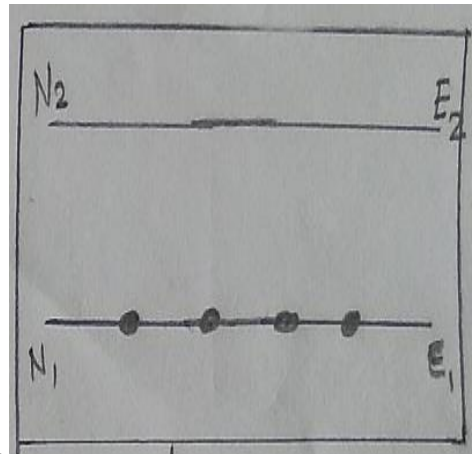
Option A: -



Option B: -



Option C: -



Option D: -

16) Question: - LASER light is coherent _____

Option A: - All the waves have same frequency Option B: - All the waves are exactly in the same phase

Option C: - All the waves have same wavelength Option D: - All the waves are exactly in the opposite phase

17) Question: - In He-Ne LASER, the tube is filled with _____

Option A: - 10 % He and 90 % Ne

Option B: - 20 % He and 80 % Ne

Option C: - 90 % He and 10 % Ne

Option D: - 80 % He and 20 % Ne

18) Question: - The conductivity of LDR increases as

Option A: - intensity of light increases

Option B: - intensity of light decrease

Option C: - wavelength of light increases

Option D: - None of the above

Topic 4

19) Question: - A property of metal by virtue of which it can resist wear, penetration and scratching by other materials is known as its _____

Option A: - Machinability

Option B: - Toughness

Option C: - Tensile strength

Option D: - Hardness

20) Question: - An alloy used in making parts of aeroplane is.....

Option A: - Brass

Option B: - Duralumin

Option C: - stainless steel

Option D: - Gun metal

21) Question: - Chemical formula of copper pyrite ore is _____

Option A: - Cu_2O

Option B: - Cu_2S

Option C: - CuFeS_2

Option D: - CuCO_3

22) Question: - Purification of blister copper is done by _____ method.

Option A: - Liquation

Option B: - Electrorefining

Option C: - Distillation

Option D: - Poling

23) Question: - The composition of Duralumin is...

Option A: - Al=95% , Cu=4%, Mg= 0.5%, Mn= 0.5 %

Option B: - Al=95% , Pb=4%, Mg= 0.5%, Mn= 0.5 %

Option C: - Al=95% , Sn=4%, Mg= 0.5%, Mn= 0.5 %

Option D: - Al=95% , Fe=4%, Mg= 0.5%, Mn= 0.5 %

Topic 5

24) Question: - By using hard water, the Caustic embrittlement in boilers take place mainly due to the formation of _____

Option A: - H_2SO_4

Option B: - NaOH

Option C: - HCl

Option D: - NH_4OH

25) Question: - The substance that can be used as a coagulating agent in water treatment _____

Option A: - Copper sulphate

Option B: - calcium sulphate

Option C: - Ferrous sulphate

Option D: - Magnesium sulphate

26) Question: - During "COD test" of sewage, organic matter is oxidized by _____

Option A: - potassium dichromate

Option B: - Sodium chloride

Option C: - Hydrochloric Acid

Option D: - calcium carbonate

27) Question: - In the ion exchange process, exhausted cation ex-changer are regenerated by using _____

Option A: - Brine solution

Option B: - Neutral solution

Option C: - Acidic solution

Option D: - Alkaline solution

28) Question: - "The reversal of solvent flow from higher concentration to lower concentration solution through semipermeable membrane" is the main principle of _____

Option A: - Ion exchange

Option B: - Soda lime

Option C: - Zeolite process

Option D: - Reverse osmosis process

Topic 6

29) Question: - Combustion reaction of the fuel is _____ reaction.

Option A: - Exothermic

Option B: - Endothermic

Option C: - Catalytic

Option D: - redox

30) Question: - _____ containing coal is not suitable for the preparation of metallurgical coke.

Option A: - sulphur

Option B: - Nitrogen

Option C: - oxygen

Option D: - Hydrogen

31) Question: - The fraction of petroleum used for preparing candles and boot polish is _____.

Option A: - Paraffin wax

Option B: - wax oil

Option C: - petrol

Option D: - castor oil

32) Question: - When a gaseous fuel is completely burned in presence of oxygen the product obtained, along with heat is _____

Option A: - Carbon dioxide & water

Option B: - Carbon monoxide & water

Option C: - Carbon particles & water

Option D: - Carbon dioxide & Carbon monoxide

33) Question: - Molecular Weight of Carbon dioxide is equal to _____

Option A: - 44

Option B: - 40

Option C: - 50

Option D: - 45

Sample Questions APPLIED SCIENCE (22211)

(For Term End Online Examination, there will be 25 (15 x 1Mark questions + 10 x 2Marks questions = 35 Marks) questions each on Physics and Chemistry.)

Topic 1

- 1) Question: - Two capacitance $4\mu\text{F}$ and $8\mu\text{F}$ are first connected in series and then parallel their equivalent capacitance are _____ and _____ respectively.

Option A: - $2.66\mu\text{F}$, $12\mu\text{F}$

Option B: - $12\mu\text{F}$, $2.66\mu\text{F}$

Option C: - $4\mu\text{F}$, $12\mu\text{F}$

Option D: - $12\mu\text{F}$, $4\mu\text{F}$

- 2) Question: - Three capacitors each of capacity C are connected. The resultant capacity ($2C/3$) can be obtained by connecting _____.

Option A: - all of them in series

Option B: - all of them in parallel

Option C: - Two of them in parallel and third in series with this combination

Option D: - Two of them in series and third in parallel across this

- 3) Question: - If the area of metal plates of capacitor with capacitance C is doubled, then capacitance will become _____.

Option A: - C

Option B: - $2C$

Option C: - $4C$

Option D: - $C/2$

- 4) Question: - A capacitor of capacity $50\mu\text{F}$ is connected across a supply of 5V . Find the energy stored in the capacitor.

Option A: - $625\mu\text{J}$

Option B: - 6.25J

Option C: - 62.5J

Option D: - $125\mu\text{J}$

5) Question: - When condensers are connected in parallel, _____ gets divided into a number of parts.

Option A: - charge

Option B: - current

Option C: - Both (A) and (B)

Option D: - potential

6) Question: - The algebraic sum of voltages around any closed path in network is equal to _____.

Option A: - Infinity

Option B: - -1

Option C: - 0

Option D: - +1

Topic 2

7) Question: - Who of the following is associated with radioactivity?

Option A: - Henry Becquerel

Option B: - Issac Newton

Option C: - Albert Einstein

Option D: - C. V. Raman

8) Question: - The half-life period of a radioactive element is 5 years. If the number of atoms present initially (at $t=0$ years) is 20,000; how many atoms would remain after 20 years?

Option A: - 10,000

Option B: - 7,500

Option C: - 5,000

Option D: - 20,000

9) Question: - Half-life period of a radioactive element is given by $T = \frac{0.693}{\lambda}$ where all symbols have usual meanings.

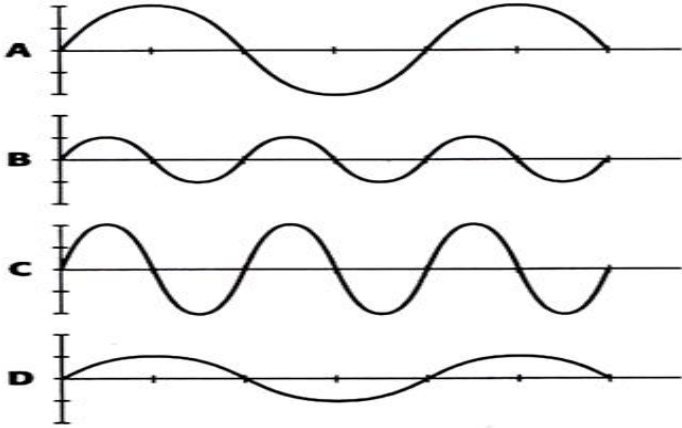
Option A: - $0.693/\lambda$

Option B: - 0.693λ

Option C: - $0.693/N$

Option D: - $0.693 N$

10) Question: - Which wave has same frequency and periodic time as wave A



Option A: - Wave B

Option B: - Wave C

Option C: - Wave D

Option D: - Both (B) and (C)

11) Question: - Which of the following statement is not true?

Option A: - When the observer moves away from the stationary source, then the pitch of sound decreases

Option B: - When the observer moves towards the stationary source, then the pitch of sound increases

Option C: - When the source moves away from stationary observer then the pitch of the sound decreases

Option D: - When the source moves towards the stationary observer then the pitch of the sound decreases

12) Question: - A siren of police car emits pure tone at a frequency of 640 Hz. Find the frequency that a stationary person would hear when the car approaches him. The police car is moving towards him at 20 m/s. (Velocity of sound in air = 340 m/s)

Option A: - 680 Hz

Option B: - 604.45 Hz

Option C: - 1360 Hz

Option D: - 1208.89 Hz

Topic 3

13) Question: - In photoelectric effect, by increasing the intensity of incident light on the surface of the metal, _____ increases

Option A: - photoelectric current

Option B: - penetration power

Option C: - ionizing power

Option D: - stopping potential

14) Question: - The photoelectric work function of the metal is 3.3eV. Then the threshold frequency of the metal will be _____.

Option A: - 7.96×10^{14} Hz

Option B: - 8.96×10^{14} Hz

Option C: - 7.96×10^{15} Hz

Option D: - 8.96×10^{15} Hz

15) Question: - Which of the following are properties of the photon?

Option A: - indivisible entity

Option B: - travels with speed of light

Option C: - Does not get deflected by electric or magnetic field

Option D: - All of the above

16) Question: - The wavelength of 1 keV photon is 1.24×10^{-9} m, then frequency of 1 MeV photon is _____.

Option A: - 1.24×10^{15} Hz

Option B: - 2.4×10^{15} Hz

Option C: - 1.24×10^{20} Hz

Option D: - 2.4×10^{20} Hz

17) Question: - In He-Ne laser, He atom transfer their energy to Ne atom through _____

Option A: - elastic collision

Option B: - inelastic collision

Option C: - absorption

Option D: - emission

18) Question: - A laser consists of active medium of collection of _____

Option A: - atoms

Option B: - molecule

Option C: - ions

Option D: - All of these

Topic 4

19) Question: - Chlorides should be removed from potable water as they render _____

Option A: - carcinogenic

Option B: - teratogenic

Option C: - unaesthetic and peculiar taste

Option D: - highly toxic

20) Question: - Corrosion of boiler occurs due to dissolved carbon dioxide can be removed by addition of calculated quantity of _____

Option A: - Hydrochloric acid

Option B: - sulphuric acid

Option C: - Nitric acid

Option D: - Ammonia

21) Question: - Pollution of water bodies can be controlled by _____

Option A: - Releasing industrial effluents into water bodies.

Option B: - dumping waste in water bodies.

Option C: - throwing plastic into water bodies.

Option D: - Treatment of sewage waste before disposal

22) Question: - Disinfection of water, during water treatment helps in removal of _____

Option A: - salts from water

Option B: - pathogenic bacteria from water

Option C: - hardness from water

Option D: - dissolved oxygen from water

23) Question: - Soap is a mixture of fatty acids like _____

Option A: - hydrochloric acid

Option B: - nitric acid

Option C: - oxalic acid

Option D: - stearic acid

24) Question: - Which of the given dissolved salts in water will cause the maximum hardness in water sample.

Option A: - 10 ppm of CaCO_3

Option B: - 10 ppm of CaSO_4

Option C: - 10 ppm of MgCl_2

Option D: - 10 ppm of Mg(OH)_2

Topic 5

25) Question: - During Titration of acetic acid with sodium hydroxide, the conductivity of solution increases after equivalence point is due to _____

Option A: - increase in number Hydroxide ions

Option B: - Neutralisation of acetic acid

Option C: - formation of water

Option D: - Removal of sodium hydroxide

26) Question: - The resistance (R) of a conductor of uniform cross section is directly proportional to _____

Option A: - Length

Option B: - Depth

Option C: - Width

Option D: - breadth

27) Question: - Hydrogen electrode is used to determine which of the given property of solution.

Option A: - conductivity

Option B: - Density

Option C: - Resistivity

Option D: - none of these

28) Question: - The Volumetric analysis, which is based on change in conductance of solution at equivalence point during titration is known as _____

Option A: - Gravimetric analysis

Option B: - Iodometry

Option C: - Conductometric titrations

Option D: - Complexometric titrations

29) Question: - In an electrolytic cell, Cathode is the electrode which is _____

Option A: - connected to Negative pole of battery

Option B: - connected to Positive pole of battery

Option C: - Positive terminal

Option D: - Negative terminal

30) Question: - Match the following: The type of Battery & their applications

1] Lead acid cell

A] Laptop, Digital Camera

2] Ni-cd cell

B] Hospitals, laboratories

3] Fuel cell

c] Cordless appliances

4] Lithium-Lithium ion battery

d] Communication system, airborne equipment in space

Option A: - 1-B 2-C 3-D 4-A

Option B: - 1-C 2-D 3-A 4-B

Option C: - 1-A 2-B 3-C 4-D

Option D: - 1-D 2-A 3-B 4-C

Topic 6

31) Question: - Copper Constantan is which type of thermocouple?

Option A: - Type-E

Option B: - Type-K

Option C: - Type-T

Option D: - Type-B

32) Question: - Name the super-cooled liquid consisting of mixture of silicates, phosphates, borates and other material with 50-80% of silica.

Option A: - Mica

Option B: - Ceramics

Option C: - Asbestos

Option D: - Glass

33) Question: - The process used to improve the drawback of crude rubber is.....

Option A: - Vulcanization

Option B: - Polymerization

Option C: - Heating

Option D: - None of these

34) Question: - Mass can neither be produced nor destroyed i.e. mass is conserved, this law is called

Option A: - Law of conservation of energy

Option B: - Law of conservation of mass

Option C: - Faradays first law

Option D: - Hooks law

35) Question: - Which among the following is/ are correct?

Graphene is:

- 1) A three dimensional network material 2) Used in nanotechnology
3) One of the strongest isotope of carbon

Option A: - Only 1 and 2

Option B: - Only 2 and 3

Option C: - Only 3

Option D: - None of them

36) Question: - A hot liquid kept in a thermos is an example of which type of system.

Option A: - open system

Option B: - closed system

Option C: - isolated system

Option D: - None of these

* _____ END _____ *