Topic:- PHYSIO BPO PHY

1) The half- life of a radioactive substance is 30 minutes. The time (in minutes) taken between 40% decay and 85% decay of the same radioactive substance is _____[Question ID = 9133]
1. 15 [Option ID = 36529]
2. 30 [Option ID = 36530]
3. 45 [Option ID = 36531]
4. 60 [Option ID = 36532]

2) An electron falls from rest through a vertical distance 'h' in a uniform and vertically upward directed electric field 'E'. The direction of the electric field is now reversed, keeping its magnitude the same. A proton is allowed to fall from rest in it through the same vertical distance 'h'. The time of fall of the electron, in comparison to the time of fall of the proton is _____[Question ID = 9134]
1. 10 times greater [Option ID = 36533]
2. 5 times greater [Option ID = 36534]
3. Smaller [Option ID = 36535]
4. Equal [Option ID = 36536]

3) A pendulum is hung from the roof of sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of bob of the pendulum is 20 m/s^2 at a distance of 5 m from the mean position. The time period of oscillation is _____

[Question ID = 9135]
1. 2s

   [Option ID = 36537]
2. πs

   [Option ID = 36538]
3. 2 πs

   [Option ID = 36539]
4. 1 s

   [Option ID = 36540]

4) An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm. If the object is displaced through a distance of 20 cm towards the mirror, the displacement of the image will be_____[Question ID = 9136]
1. 30 cm towards the mirror [Option ID = 36541]
2. 36 cm away from the mirror [Option ID = 36542]
3. 30 cm away from the mirror [Option ID = 36543]
4. 36 cm towards the mirror [Option ID = 36544]

5) A thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, the diamagnetic rod is pushed up, out of the horizontal magnetic field. Hence the rod gains gravitational potential energy. The work required to do this comes from _____[Question ID = 9137]
1. The lattice structure of the material of the rod [Option ID = 36545]
2. The magnetic field [Option ID = 36546]
3. The current source [Option ID = 36547]
4. The induced electric field due to the charging magnetic field [Option ID = 36548]

6) A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass the same. Which of the following quantities would remain constant for the sphere?

[Question ID = 9138]
1. Rotational kinetic energy

   [Option ID = 36549]
2. Moment of inertia

   [Option ID = 36550]
3. Angular velocity

   [Option ID = 36551]
4. Angular momentum

   [Option ID = 36552]

7) A body weighs 200 N on the surface of the earth. How much will it weigh half way down the centre of the earth?[Question ID = 9139]
1. 200 N [Option ID = 36553]
2. 250 N [Option ID = 36554]
3. 100 N [Option ID = 36555]
4. 150 N [Option ID = 36556]

8) Which of the following statements is wrong with respect to rainbow?[Question ID = 9140]
1. The order of the colours are reversed in the secondary rainbow [Option ID = 36557]
2. An observer can see a rainbow when his front is towards the sun [Option ID = 36558]
3. Rainbow is a combined effect of dispersion, refraction and reflection of the sunlight [Option ID = 36559]
4. When the light rays undergo two internal reflections in a water drop, a secondary rainbow is formed [Option ID = 36560]

9) In which of the following devices, the eddy current effect is NOT used?[Question ID = 9141]
1. Magnetic breaking in train [Option ID = 36561]
2. Electromagnet [Option ID = 36562]
3. Electric heater [Option ID = 36563]
4. Induction furnace [Option ID = 36564]

10) Which colour of light has the longest wavelength?[Question ID = 9142]
1. Blue [Option ID = 36565]
2. Green [Option ID = 36566]
3. Violet [Option ID = 36567]
4. Red [Option ID = 36568]

11) The unit of thermal conductivity is _____[Question ID = 9143]
1. J m^{-1} K^{-1} [Option ID = 36569]
2. W m K^{-1} [Option ID = 36570]
3. W m $^{-1}$ K^{-1} [Option ID = 36571]

4. J m K^{-1} [Option ID = 36572]

12) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R

Assertion A : Particle 'A' is moving Eastwards and particle 'B' Northwards with same speed. Then, velocity of 'A' with respect to 'B' is in South-East direction.

Reason R : Relative velocity between them is zero as their speeds are same.

In light of the above statements, choose the correct answer from the options given below

[Question ID = 9144]
1. Both A and R are true and R is the correct explanation of A

   [Option ID = 36573]
2. Both A and R are true but R is NOT the correct explanation of A

   [Option ID = 36574]
3. A is true but R is false

   [Option ID = 36575]
4. A is false but R is true

   [Option ID = 36576]

13) Which of the following statements is TRUE?[Question ID = 9145]
1. A scalar quantity is the one that is converted in a process [Option ID = 36577]
2. A scalar quantity is the one that can never take negative values [Option ID = 36578]
3. A scalar quantity is the one that does not vary from one point to another in space [Option ID = 36579]
4. A scalar quantity has the same value for observers with different orientation of the axes. [Option ID = 36580]

14) A ball thrown by one player reaches the other in 2 s. The maximum height attained by the ball above the point of projection will take _____ (take, g = 10 ms^{-2})[Question ID = 9146]
1. 2.5 m [Option ID = 36581]
2. 5 m [Option ID = 36582]
3. 7.5 m [Option ID = 36583]
4. 10 m [Option ID = 36584]

15) A uniform disc of radius 'a' and mass 'm', is rotating freely with angular speed ω in a horizontal plane about a smooth fixed vertical axis through its centre. A particle, also of mass 'm', is suddenly attached to the rim of the disc and rotates with it. The new angular speed is _____

[Question ID = 9147]
1. $\omega/6$

   [Option ID = 36585]
2. $\omega/3$

   [Option ID = 36586]
3. $\omega/2$

   [Option ID = 36587]
4. $\omega/5$

   [Option ID = 36588]

16) Increase in temperature of a gas filled in a container would lead to _____[Question ID = 9148]
1. Increase in its kinetic energy [Option ID = 36589]
2. Decrease in its pressure [Option ID = 36590]
3. Decrease in intermolecular distance [Option ID = 36591]
4. Increase in its mass [Option ID = 36592]

17) A particle of mass 10 g moves along a circle of radius 6.4 cm with a constant tangential acceleration. What is the magnitude of this acceleration, if the kinetic energy of the particle becomes equal to 8 x 10^{-4} J by the end of the second revolution after the beginning of the motion?[Question ID = 9149]
1. 0.15 ms^{-2} [Option ID = 36593]
2. 0.18 ms^{-2} [Option ID = 36594]
3. 0.2 ms^{-2} [Option ID = 36595]
4. 0.1 ms^{-2} [Option ID = 36596]

18) An equi-convex lens has power 'P'. It is cut into two symmetrical halves by a plane containing the principal axis. The power of one part will be _____[Question ID = 9150]
1. 0 [Option ID = 36597]
2. P/2 [Option ID = 36598]
3. P/4 [Option ID = 36599]
4. P [Option ID = 36600]

19) The stress-strain curves are drawn for two different materials 'X' and 'Y'. it is observed that the ultimate strength point and the fracture point are close to each other for material X but are far apart for material Y. we can say that the material X and Y are likely to be _____ respectively.[Question ID = 9151]
1. Ductile and Brittle [Option ID = 36601]
2. Brittle and Ductile [Option ID = 36602]
3. Brittle and Plastic [Option ID = 36603]
4. Plastic and Ductile [Option ID = 36604]

20) The average kinetic energy of a gas molecule at absolute temperature T is _____[Question ID = 9152]
1. Directly proportional to T^2 [Option ID = 36605]
2. Inversely proportional to T^2 [Option ID = 36606]
3. Directly proportional to T [Option ID = 36607]
4. Inversely proportional to T [Option ID = 36608]

21) A circuit when connected to an AC source of 12 V gives a current of 0.2 A. The same circuit when connected to a DC source of 12 V, gives a current of 0.4 A. The circuit is _____[Question ID = 9153]
1. Series LR [Option ID = 36609]
2. Series RC [Option ID = 36610]
3. Series LC [Option ID = 36611]
4. Series LCR [Option ID = 36612]

22) For which of the following, the Bohr model is NOT valid?[Question ID = 9154]
1. Singly ionised helium atom (He$^+$) [Option ID = 36613]
2. Deuteron atom [Option ID = 36614]
3. Singly ionised neon atom (Ne$^+$) [Option ID = 36615]
4. Hydrogen atom [Option ID = 36616]

23) The energy equivalent of 0.5 g of a substance is _____[Question ID = 9155]

1. 4.5×10^{13} J [Option ID = 36617]
2. 1.5×10^{13} J [Option ID = 36618]
3. 0.5×10^{13} J [Option ID = 36619]
4. 4.5×10^{16} J [Option ID = 36620]

24) The linear momentum of a particle varies with time t as $p = a + bt + ct^2$. Then which of the following statement is correct?[Question ID = 9156]
1. Velocity of particle is inversely proportional to time [Option ID = 36621]
2. Displacement of particle is independent of time [Option ID = 36622]
3. Force varies with time in a quadratic manner [Option ID = 36623]
4. Force is dependent linearly on time [Option ID = 36624]

25) The solids which have a negative temperature coefficient of resistance are _____[Question ID = 9157]
1. Insulator only [Option ID = 36625]
2. Semiconductors only [Option ID = 36626]
3. Insulators and semiconductors [Option ID = 36627]
4. Metals [Option ID = 36628]

Topic:- PHYSIO BPO CHEM

1) The correct order of N- compounds in its decreasing order of oxidation states is _____[Question ID = 9158]
1. HNO_3, NH_4Cl, NO, N_2 [Option ID = 36629]
2. HNO_3, NO, NH_4Cl, N_2 [Option ID = 36630]
3. HNO_3, NO, N_2, NH_4Cl [Option ID = 36631]
4. NH_4Cl, N_2, NO, HNO_3 [Option ID = 36632]

2) Considering Ellingham diagram, which of the following metals can be used to reduce alumina?[Question ID = 9159]
1. Mg [Option ID = 36633]
2. Zn [Option ID = 36634]
3. Fe [Option ID = 36635]
4. Cu [Option ID = 36636]

3) Which of the following compound can form a zwitter ion?[Question ID = 9160]
1. Benzoic acid [Option ID = 36637]
2. Acetanilide [Option ID = 36638]
3. Aniline [Option ID = 36639]
4. Glycine [Option ID = 36640]

4) A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc.H_2SO_4. The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be _____[Question ID = 9161]
1. 2.8 [Option ID = 36641]
2. 3.0 [Option ID = 36642]
3. 1.4 [Option ID = 36643]
4. 4.4 [Option ID = 36644]

5) Which of the following oxides is most acidic in nature?[Question ID = 9162]
1. BaO [Option ID = 36645]
2. BeO [Option ID = 36646]
3. MgO [Option ID = 36647]
4. CaO [Option ID = 36648]

6) Which of the following statements is NOT true for halogens?[Question ID = 9163]
1. All but fluorine show positive oxidation states [Option ID = 36649]
2. All are oxidising agents [Option ID = 36650]
3. All form monobasic oxyacids [Option ID = 36651]
4. Chlorine has the highest electron-gain enthalpy [Option ID = 36652]

7) Iron carbonyl, $Fe(CO)_5$ is _____[Question ID = 9164]
1. Trinuclear [Option ID = 36653]
2. Mononuclear [Option ID = 36654]
3. Tetranuclear [Option ID = 36655]
4. Dinuclear [Option ID = 36656]

8) The solubility of $BaSO_4$ in water is 2.42×10^{-3} gL^{-1} at 298 K. The value of its solubility product (K_{sp}) will be _____(Given molar mass of $BaSO_4$ = 233 g mol^{-1})[Question ID = 9165]
1. 1.08×10^{-14} mol^2L^{-2} [Option ID = 36657]
2. 1.08×10^{-12} mol^2L^{-2} [Option ID = 36658]
3. 1.08×10^{-10} mol^2L^{-2} [Option ID = 36659]
4. 1.08×10^{-8} mol^2L^{-2} [Option ID = 36660]

9) Which of the following will liberate Br_2 from KBr?[Question ID = 9166]
1. I_2 [Option ID = 36661]
2. SO_2 [Option ID = 36662]
3. HI [Option ID = 36663]
4. Cl_2 [Option ID = 36664]

10) Which one of the following is used as a piezoelectric material?[Question ID = 9167]
1. Silicones [Option ID = 36665]
2. Silica gel [Option ID = 36666]
3. Kieselguhr [Option ID = 36667]
4. Quartz [Option ID = 36668]

11) C - Cl bond is stronger than C - I bond because _____

[Question ID = 9168]
1. C - Cl bond is more ionic than C - I

   [Option ID = 36669]
2. C - Cl bond has polar covalent bond

   [Option ID = 36670]
3. C - Cl bond is more covalent than C - I

   [Option ID = 36671]
4. C - Cl bond length is longer than C—I

   [Option ID = 36672]

12) When initial concentration of the reactant is doubled, the half- life period of a zero order reaction is _____[Question ID = 9169]
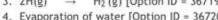
1. Tripled [Option ID = 36673]
2. Doubled [Option ID = 36674]
3. Halved [Option ID = 36675]
4. Remains unchanged [Option ID = 36676]

13) Consider the following species: CN⁺, CN⁻, NO and CN Which one of these will have the highest bond order?[Question ID = 9170]
1. CN⁺ [Option ID = 36677]
2. CN ⁻ [Option ID = 36678]
3. NO [Option ID = 36679]
4. CN [Option ID = 36680]

14) For an ideal solution, the correct option is _____

[Question ID = 9171]
1. Δ_{mix} V ≠ 0 at constant T and P

   [Option ID = 36681]
2. Δ_{mix} H = 0 at constant T and P

   [Option ID = 36682]
3. Δ_{mix} G = 0 at constant T and P

   [Option ID = 36683]
4. Δ_{mix} S = 0 at constant T and P

   [Option ID = 36684]

15) Which will make basic buffer?[Question ID = 9172]
1. 100 mL of 0.1 M CH_3COOH + 100 mL of 0.1 M NaOH [Option ID = 36685]
2. 50 mL of 0.1 M NaOH + 25 mL of 0.1 M CH_3COOH [Option ID = 36686]
3. 100 mL of 0.1 M HCl + 100 mL of M NaOH [Option ID = 36687]
4. 100 mL of 0.1 M HCl + 200 mL of 0.1 M NH_4OH [Option ID = 36688]

16) The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is _____[Question ID = 9173]
1. 20 [Option ID = 36689]
2. 40 [Option ID = 36690]
3. 30 [Option ID = 36691]
4. 10 [Option ID = 36692]

17) The biodegradable polymer is _____[Question ID = 9174]
1. Nylon-2-nylon-6 [Option ID = 36693]
2. Nylon-6 [Option ID = 36694]
3. Buna-S [Option ID = 36695]
4. Nylon-6,6 [Option ID = 36696]

18) If CO_2 is passed into waste water containing CrO_4^{2-} (yellow) then _____[Question ID = 9175]
1. Solution turns green due to formation of Cr^{3+} [Option ID = 36697]
2. Solution turns blue due to formation of CrO_5 [Option ID = 36698]
3. Solution turns orange due to formation of $Cr_2O_7^{2-}$ [Option ID = 36699]
4. No effect takes place [Option ID = 36700]

19) Which of the following is INCORRECT statement?[Question ID = 9176]
1. Na_2CO_3 is used in glass industry [Option ID = 36701]
2. $KHCO_3$ is acidic salt [Option ID = 36702]
3. K_2CO_3 can be prepared by solvay process [Option ID = 36703]
4. Na_2CO_3 is used for metal refining [Option ID = 36704]

20) The number of sigma (σ) and pi (π) bonds in pent-2-en-4-yne is _____

[Question ID = 9177]
1. 8 σ- bonds and 5 π- bonds

   [Option ID = 36705]
2. 11 σ- bonds and 2 π- bonds

   [Option ID = 36706]
3. 13 σ- bonds and no π- bonds

   [Option ID = 36707]
4. 10 σ- bonds and 3 π- bonds

   [Option ID = 36708]

21) The method used to remove temporary hardness of water is called as _____[Question ID = 9178]
1. Clark's method [Option ID = 36709]
2. Ion- exchange method [Option ID = 36710]
3. Synthetic resins method [Option ID = 36711]
4. Calgon's method [Option ID = 36712]

22) Match the xenon compounds in List I with its structure in List II and assign the correct code:

List I	List II
(Compond)	(structure)
A. XeF_4	(I). Pyramidal
B.XeF_6	(II).Square planar
C. $XeOF_4$	(III). Distorted octahedral
D. XeO_3	(IV). Square pyramidal

Choose the correct answer from the options given below:[Question ID = 9179]
1. A - (II) , B - (III) , C - (IV) , D - (I) [Option ID = 36713]
2. A - (II) , B - (III) , C - (I) , D - (IV) [Option ID = 36714]
3. A -(III) , B - (IV) , C - (I) , D - (II) [Option ID = 36715]
4. A - (I) , B - (II) , C - (III) , D - (IV) [Option ID = 36716]

23) In which case change in entropy is negative?[Question ID = 9180]
1. Expansion of a gas at constant temperature [Option ID = 36717]
2. Sublimation of solid to gas [Option ID = 36718]
3. 2H(g) → H_2 (g) [Option ID = 36719]
4. Evaporation of water [Option ID = 36720]

24) Under isothermal condition, a gas at 300 K expands from 0.1 L to 0.25 L against a constant external pressure of 2 bar. The work done by the gas is _____ (Given that 1 L bar = 100 J)

[Question ID = 9181]

1. 5 J

   [Option ID = 36721]

2. 25 J

   [Option ID = 36722]

3. -30 J

   [Option ID = 36723]

4. 35 J

   [Option ID = 36724]

25) In water saturated air the mole fraction of water vapour is 0.02. If the total pressure of the saturated air is 1.2 atm, the partial pressure of dry air is _____[Question ID = 9182]

1. 1.18 atm [Option ID = 36725]
2. 1.76 atm [Option ID = 36726]
3. 1.176 atm [Option ID = 36727]
4. 0.98 atm [Option ID = 36728]

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1) Which Indian state/UT has introduced a new "School bag policy"?[Question ID = 9183]
1. Gujarat [Option ID = 36729]
2. Odisha [Option ID = 36730]
3. Delhi [Option ID = 36731]
4. Rajasthan [Option ID = 36732]

2) A team of scientists from which organisation has entered China, to probe the source of Coronavirus?[Question ID = 9184]
1. FAO [Option ID = 36733]
2. WHO [Option ID = 36734]
3. CDC [Option ID = 36735]
4. John Hopkins University [Option ID = 36736]

3) Who of the following Indian athletes won the silver medal in weight lifting in Tokyo Olympics 2020?[Question ID = 9185]
1. P V Sindhu [Option ID = 36737]
2. Mirabai Chanu [Option ID = 36738]
3. Lovlina Borgohain [Option ID = 36739]
4. Mary Kom [Option ID = 36740]

4) Which country chaired the recent session of the Executive Board of WHO, held in January 2021?[Question ID = 9186]
1. United States [Option ID = 36741]
2. India [Option ID = 36742]
3. China [Option ID = 36743]
4. Australia [Option ID = 36744]

5) 'Warli painting' originated in which of the following states of India?[Question ID = 9187]
1. Maharashtra [Option ID = 36745]
2. Tamil Nadu [Option ID = 36746]
3. Odisha [Option ID = 36747]
4. Manipur [Option ID = 36748]

6) Weyan, which is the first village to vaccinate all its adult population against COVID, is located in which state/UT?[Question ID = 9188]
1. Haryana [Option ID = 36749]
2. Jammu and Kashmir [Option ID = 36750]
3. Sikkim [Option ID = 36751]
4. Goa [Option ID = 36752]

7) Who was the first chairman of the Indian Space Research Organization?[Question ID = 9189]
1. M.G. K. Menon [Option ID = 36753]
2. Vikram Sarabhai [Option ID = 36754]
3. U. R. Rao [Option ID = 36755]
4. K Sivan [Option ID = 36756]

8) Which of the following States of India has the largest forest coverage area?[Question ID = 9190]
1. Madhya Pradesh [Option ID = 36757]
2. Karnataka [Option ID = 36758]
3. Manipur [Option ID = 36759]
4. Kerala [Option ID = 36760]

9) Who are the two female scientists to head India's 2nd Moon mission Chandrayaan-2?[Question ID = 9191]
1. V R Lalithambika and Kriti Faujdar [Option ID = 36761]
2. Anuradha TK and Nandini Harinath [Option ID = 36762]
3. Ritu Karidhal and Muthayya Vanitha [Option ID = 36763]
4. Minal Sampath and Tessy Thomas [Option ID = 36764]

10) Who was the first Indian to be invited to the Islamic Nation's conclave held in Abu Dhabi?[Question ID = 9192]
1. Sushma Swaraj [Option ID = 36765]
2. Narendra Modi [Option ID = 36766]
3. Rahul Gandhi [Option ID = 36767]
4. Smriti Irani [Option ID = 36768]

11) Which State launched the 'Pink Sarathi' vehicles for women's safety?[Question ID = 9193]
1. Maharashtra [Option ID = 36769]
2. Karnataka [Option ID = 36770]
3. Tamil Nadu [Option ID = 36771]
4. Telangana [Option ID = 36772]

12) Mawlynnong- Asia's cleanest village is in _____[Question ID = 9194]
1. Assam [Option ID = 36773]
2. Manipur [Option ID = 36774]
3. Meghalaya [Option ID = 36775]
4. Odisha [Option ID = 36776]

13) The full form of USB, is _____[Question ID = 9195]
1. Uniform Service Broadcasting [Option ID = 36777]
2. Unique Solution Bus [Option ID = 36778]
3. Universal Serial Bus [Option ID = 36779]
4. Universal Service Broadcasting [Option ID = 36780]

14) The earth's crust is thinnest _____[Question ID = 9196]
1. Under mountain ranges [Option ID = 36781]
2. Under continental masses [Option ID = 36782]
3. At bottom of the ocean [Option ID = 36783]
4. At mid-oceanic ridges [Option ID = 36784]

15) Which of the following rivers is the longest river in the world?[Question ID = 9197]
1. Nile [Option ID = 36785]
2. Ganga [Option ID = 36786]
3. Amazon [Option ID = 36787]
4. Mississippi [Option ID = 36788]

16) Who is the author of the famous fantasy novel "Harry Potter"?[Question ID = 9198]
1. Mr. Ernest Hemingway [Option ID = 36789]
2. Mr. James Joyce [Option ID = 36790]
3. Ms. J. K. Rowling [Option ID = 36791]
4. None of the above [Option ID = 36792]

17) Which is the largest milk producing country in the world?[Question ID = 9199]
1. India [Option ID = 36793]
2. United States [Option ID = 36794]
3. China [Option ID = 36795]
4. Denmark [Option ID = 36796]

18) The World Health Organization (WHO) has collaborated with which company to distribute Covid vaccines under Covax alliance?[Question ID = 9200]
1. Pfizer [Option ID = 36797]
2. Roche [Option ID = 36798]
3. Merck [Option ID = 36799]
4. Johnson & Johnson [Option ID = 36800]

19) NTPC REL has proposed to set up India's single-largest solar photovoltaic project in which state?[Question ID = 9201]
1. Tamil Nadu [Option ID = 36801]
2. Rajasthan [Option ID = 36802]
3. Kerala [Option ID = 36803]
4. Gujarat [Option ID = 36804]

20) The country that shares largest border with India is _____[Question ID = 9202]
1. China [Option ID = 36805]
2. Bangladesh [Option ID = 36806]
3. Nepal [Option ID = 36807]
4. Srilanka [Option ID = 36808]

21) Who is known as the "Iron man" of India?[Question ID = 9203]
1. Mahatma Gandhi [Option ID = 36809]
2. Sardar Vallabhbhai Patel [Option ID = 36810]
3. Jawaharlal Nehru [Option ID = 36811]
4. Subhash Chandra Bose [Option ID = 36812]

22) Which day is celebrated as World Health Day?[Question ID = 9204]
1. 7-Apr [Option ID = 36813]
2. 10-Apr [Option ID = 36814]
3. 9-Apr [Option ID = 36815]
4. 6-Apr [Option ID = 36816]

23) Which Indian state produces the largest amount of spices?[Question ID = 9205]
1. Andhra Pradesh [Option ID = 36817]
2. Gujarat [Option ID = 36818]
3. Rajasthan [Option ID = 36819]
4. Kerala [Option ID = 36820]

24) The Anti Drone System developed by which organization has been deployed at the Independence Day celebrations in Delhi?[Question ID = 9206]
1. ISRO [Option ID = 36821]
2. Indian Army [Option ID = 36822]
3. DRDO [Option ID = 36823]
4. BEL [Option ID = 36824]

25) Who is the current defence minister of India?[Question ID = 9207]
1. Shri Amit Shah [Option ID = 36825]
2. Shri Rajnath Singh [Option ID = 36826]
3. Shri. S. Jaishankar [Option ID = 36827]
4. Smt. Nirmala Sitharaman [Option ID = 36828]

Topic:- PHYSIO BPO BIO

1) Which one of the following is WRONG for fungi?[Question ID = 9208]
1. They are eukaryotic [Option ID = 36829]
2. All fungi possess a purely cellulosic cell wall [Option ID = 36830]
3. They are heterotrophic [Option ID = 36831]
4. They are unicellular and multicellular [Option ID = 36832]

2) One of the representative of phylum- Arthropoda is _____[Question ID = 9209]
1. Cuttlefish [Option ID = 36833]
2. Silverfish [Option ID = 36834]
3. Puffer fish [Option ID = 36835]
4. Flying fish [Option ID = 36836]

3) Which of the following statements is true?[Question ID = 9210]
1. Vessels are unicellular and with narrow lumen [Option ID = 36837]
2. Vessels are multicellular and with wide lumen [Option ID = 36838]
3. Tracheids are unicellular and with wide lumen [Option ID = 36839]

4. Tracheids are multicellular and with narrow lumen [Option ID = 36840]

4) Haemoglobin is _____ [Question ID = 9211]
1. An oxygen carrier in human blood [Option ID = 36841]
2. A protein used as a food supplement [Option ID = 36842]
3. An oxygen scavenger in root nodules [Option ID = 36843]
4. A plant with high lysine conte [Option ID = 36844]

5) The enzyme which catalyses the formation of glutamine from its substrate, belongs to which of the following category of enzymes?[Question ID = 9212]
1. Ligases [Option ID = 36845]
2. Lyases [Option ID = 36846]
3. Hydrolases [Option ID = 36847]
4. Transferases [Option ID = 36848]

6) Which one of the following is NOT the mammalian character?[Question ID = 9213]
1. Presence of milk producing glands [Option ID = 36849]
2. They have two pairs of limbs [Option ID = 36850]
3. Skin is unique in possessing hair [Option ID = 36851]
4. Homodont type of dentition [Option ID = 36852]

7) Ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in _____ [Question ID = 9214]
1. Fallopian tubes and pancreatic duct [Option ID = 36853]
2. Eustachian tube and sallivary tubes [Option ID = 36854]
3. Bronchioles and fallopian tubes [Option ID = 36855]
4. Bile duct and bronchioles [Option ID = 36856]

8) It takes very long time for pineapple plants to produce flowers. Which combination of hormones can be applied to artificially induce flowering in pineapple plants throughout the year to increase yield?[Question ID = 9215]
1. Gibberellin and cytokinin [Option ID = 36857]
2. Gibberellin and Abscisic acid [Option ID = 36858]
3. Cytokinin and Abscisic acid [Option ID = 36859]
4. Auxin and Ethylene [Option ID = 36860]

9) Match the following hormones in List I with the respective diseases in List II

List I	List II
(Hormones)	(Diseases)
A. Insulin	I. Addison's disease
B. Thyroxin	II. Diabetes insipidus
C. Corticosteroids	III. Acromegaly
D. Growth hormone	IV. Goitre
	V. Diabetes mellitus

Choose the correct answer from the options given below:

[Question ID = 9216]
1. A- II, B- IV, C- III, D- I

[Option ID = 36861]
2. A-V, B- IV, C- I, D- III

[Option ID = 36862]
3. A- II, B- IV, C- I, D- III

[Option ID = 36863]
4. A- V, B- I, C- II, D- III

[Option ID = 36864]

10) Element related to nitrogen metabolism is _____ [Question ID = 9217]
1. Manganese [Option ID = 36865]
2. Magnesium [Option ID = 36866]
3. Zinc [Option ID = 36867]
4. Molybdenum [Option ID = 36868]

11) The primary cell wall is composed of _____ [Question ID = 9218]
1. 8-10% cellulose and 60% hemicellulose [Option ID = 36869]
2. 2-5 % cellulose and 50% hemicellulose [Option ID = 36870]
3. 10-15% starch and 80% galactose [Option ID = 36871]
4. 7- 18 % glucose and 50% hemicellulose [Option ID = 36872]

12) Conversion of milk to curd improves its nutritional value by increasing the amount of _____ [Question ID = 9219]
1. Vitamin B_{12} [Option ID = 36873]
2. Vitamin A [Option ID = 36874]
3. Vitamin D [Option ID = 36875]
4. Vitamin E [Option ID = 36876]

13) In some plants, the female gamates develops into embryo without fertilisation. This phenomenon is known as _____ [Question ID = 9220]
1. Parthenocarpy [Option ID = 36877]
2. Syngamy [Option ID = 36878]
3. Parthenogenesis [Option ID = 36879]
4. Autogamy [Option ID = 36880]

14) Humans have acquired immune system that produces antibodies to neutralise pathogens. Still innate immune system is present at the time of birth because it _____ [Question ID = 9221]
1. Is very specific and uses different macrophages [Option ID = 36881]
2. Produces memory cells for mounting fast secondary response [Option ID = 36882]
3. Has natural killer cells which can phagocytose and destroy microbes [Option ID = 36883]
4. Provides passive immunity [Option ID = 36884]

15) Synthesis of one glucose molecule requires _____ reduced NADP molecules.[Question ID = 9222]
1. 6 [Option ID = 36885]
2. 12 [Option ID = 36886]

3. 18 [Option ID = 36887]
4. 24   [Option ID = 36888]

16) During anaerobic respiration, the conversion of pyruvate into acetaldehyde along with TPP, the cofactor is _____ [Question ID = 9223]
1. Mg^{2+} [Option ID = 36889]
2. Mn^{2+} [Option ID = 36890]
3. Fe^{2+} [Option ID = 36891]
4. Zn^{2+} [Option ID = 36892]

17) During seed germination it's stored food is mobilized by _____ [Question ID = 9224]
1. Ethylene [Option ID = 36893]
2. Cytokinin [Option ID = 36894]
3. ABA [Option ID = 36895]
4. Gibberellin [Option ID = 36896]

18) Which of the following have the smallest diameter?[Question ID = 9225]
1. Right primary bronchus [Option ID = 36897]
2. Left primary bronchus [Option ID = 36898]
3. Trachea [Option ID = 36899]
4. Respiratory bronchioles   [Option ID = 36900]

19) Which of the following elements is responsible for maintaining turgor in cell?[Question ID = 9226]
1. Potassium [Option ID = 36901]
2. Sodium [Option ID = 36902]
3. Magnesium [Option ID = 36903]
4. Calcium   [Option ID = 36904]

20) The Golgi complex participates in_____[Question ID = 9227]
1. Respiration in bacteria [Option ID = 36905]
2. Formation of secretory vesicles [Option ID = 36906]
3. Fatty acid breakdown [Option ID = 36907]
4. Activation of amino acid   [Option ID = 36908]

21) The main difference between active and passive transport across cell membrane is _____[Question ID = 9228]
1. Passive transport is non selective whereas active transport is selective [Option ID = 36909]
2. Passive transport requires concentration gradient across the biological membrane whereas active transport requires energy to move solutes [Option ID = 36910]
3. Passive transport is confined to anionic carrier proteins whereas active transport is confined to cationic channel proteins [Option ID = 36911]
4. Active transport occurs more rapidly than passive transport [Option ID = 36912]

22) Which of the following is NOT function of placenta?[Question ID = 9229]
1. It secrets oestrogen [Option ID = 36913]
2. It facilitates removal of carbon dioxide and waste material from embryo [Option ID = 36914]
3. It secretes oxytocin during parturition [Option ID = 36915]
4. It facilitates supply of oxygen and nutrients to embryo [Option ID = 36916]

23) Secondary xylem and phloem in dicot stem are produced by _____[Question ID = 9230]
1. Phellogen [Option ID = 36917]
2. Vascular cambium [Option ID = 36918]
3. Apical meristems [Option ID = 36919]
4. Axillary meristems [Option ID = 36920]

24) Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as _____

[Question ID = 9231]
1. Plastidome

[Option ID = 36921]
2. Polyhedral bodies

[Option ID = 36922]
3. Polysome

[Option ID = 36923]
4. Nucleosome

[Option ID = 36924]

25) Which of the following is amino acid derived hormone?[Question ID = 9232]
1. Estradiol [Option ID = 36925]
2. Ecdysone [Option ID = 36926]
3. Epinephrine [Option ID = 36927]
4. Estriol [Option ID = 36928]

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1) If aN={ax : x∈N}, then the set 4N∩6N is[Question ID = 9233]
1. 2N [Option ID = 36929]
2. 8N [Option ID = 36930]
3. 12N [Option ID = 36931]
4. 4N [Option ID = 36932]

2) If $cos20°-sin20°$=P, the $cos40°$ is equal to

[Question ID = 9234]
1. $P - \sqrt{2 - P^2}$

[Option ID = 36933]
2. $P\sqrt{2 - P^2}$

[Option ID = 36934]
3. $P + \sqrt{2 - P^2}$

[Option ID = 36935]
4. $-P\sqrt{2 - P^2}$

[Option ID = 36936]

3) If $0 \le α$, Β $\le 90°$, tan(α+Β)=3 and tan(α-Β)=2, then the value of sin 2α is

[Question ID = 9235]

1. $\frac{1}{\sqrt{2}}$

[Option ID = 36937]

2. 1

[Option ID = 36938]

3. 0

[Option ID = 36939]

4. $\frac{1}{2}$

[Option ID = 36940]

4) For what real value(s) of x and y the complex numbers $x^2 - 7x + 9yi$ and $y^2 i + 20i - 12$ are equal?

[Question ID = 9236]

1. $x = 3, y = 3$

[Option ID = 36941]

2. $x = 1, y = 1$

[Option ID = 36942]

3. $x = 1, y = 2$ and $x = 2, y = 1$

[Option ID = 36943]

4. $x = 4, y = 4$ and $x = 4, y = 5$

[Option ID = 36944]

5) Solution of the inequality $2 \leq |x - 3| \leq 4$ is

[Question ID = 9237]

1. $[-1, 1] \cup [0, 7]$

[Option ID = 36945]

2. $[0, 1] \cup [5, 7]$

[Option ID = 36946]

3. $(-\infty, 0] \cup [5, \infty)$

[Option ID = 36947]

4. $[-1, 1] \cup [5, 7]$

[Option ID = 36948]

6) A team consisting of 7 boys and 3 girls plays singles matches against another team consisting of 5 boys and 5 girls. How many matches can be scheduled between the two teams if a boy plays against a girl and girl plays against a boy?[Question ID = 9238]
1. 10 [Option ID = 36949]
2. 24 [Option ID = 36950]
3. 50 [Option ID = 36951]
4. 120 [Option ID = 36952]

7) The sum of all 4-digit numbers which can be formed with the digits 0, 1, 2 and 3 is [Question ID = 9239]
1. 38664 [Option ID = 36953]
2. 26664 [Option ID = 36954]
3. 60000 [Option ID = 36955]
4. 66660 [Option ID = 36956]

8) In an examination a minimum of 35 marks are to secured in each of 5 subjects by a student to be declared as pass. In how many ways a student can fail? [Question ID = 9240]
1. 11 [Option ID = 36957]
2. 18 [Option ID = 36958]
3. 31 [Option ID = 36959]
4. 27 [Option ID = 36960]

9)

In the binomial expansion of $(a - b)^n, n \geq 5$, the sum of 5th and 6th terms is zero. Then value of $\frac{a}{b}$.

[Question ID = 9241]

1. $\frac{n}{2}$

[Option ID = 36961]

2. $\frac{n-4}{5}$

[Option ID = 36962]

3. $\frac{n-1}{3}$

[Option ID = 36963]

4. 1 [Option ID = 36964]

10) The equation of the circle having radius 5 units and passing through two points on y-axis which are at a distance of 3 units from the origin is [Question ID = 9242]
1. $x^2 + y^2 + 4y - 3 = 0$ [Option ID = 36965]
2. $x^2 + y^2 + 6x - 9 = 0$ [Option ID = 36966]
3. $x^2 + y^2 + 6x - 7 = 0$ [Option ID = 36967]
4. $x^2 + y^2 + 8x - 9 = 0$ [Option ID = 36968]

11) Let AB be the line joining (8, 2), (-5, 3) and CD be the line joining (16, 6), (3, 15), then [Question ID = 9243]
1. AB is Parallel to CD [Option ID = 36969]
2. AB is Perpendicular to CD [Option ID = 36970]
3. AB is Neither parallel nor perpendicular to CD [Option ID = 36971]
4. AB is Neither parallel nor perpendicular to CD and slope of AB is equal to three times slope of CD [Option ID = 36972]

12) The radius of circumcircle of the triangle whose vertices are (-2, -3), (-1, 0) and (7, -6) is [Question ID = 9244]
1. 2 [Option ID = 36973]
2. 3 [Option ID = 36974]
3. 5 [Option ID = 36975]
4. 7 [Option ID = 36976]

13)

Let $f: R - \left\{\frac{3}{5}\right\} \to R$ be defined by $f(x) = \frac{3x+2}{5x-3}$ then

[Question ID = 9245]

1. $f^{-1}(x) = f(x)$

   [Option ID = 36977]

2. $f^{-1}(x) = -f(x)$

   [Option ID = 36978]

3. $(fof)x = -x$

   [Option ID = 36979]

4. $f^{-1}(x) = \frac{1}{19}f(x)$

   [Option ID = 36980]

14)

On using elementary row transformation $R_1 \to R_1 - 3R_2$ in the following matrix equation $\begin{bmatrix} 4 & 2 \\ 3 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}\begin{bmatrix} 2 & 0 \\ 1 & 1 \end{bmatrix}$, we get

[Question ID = 9246]

1. $\begin{bmatrix} -5 & -7 \\ 3 & 3 \end{bmatrix} = \begin{bmatrix} 1 & -7 \\ 0 & 3 \end{bmatrix}\begin{bmatrix} 2 & 0 \\ 1 & 1 \end{bmatrix}$

   [Option ID = 36981]

2. $\begin{bmatrix} 4 & 2 \\ -5 & -7 \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ -3 & -3 \end{bmatrix}\begin{bmatrix} 2 & 0 \\ 1 & 1 \end{bmatrix}$

   [Option ID = 36982]

3. $\begin{bmatrix} -5 & -7 \\ 3 & 3 \end{bmatrix} = \begin{bmatrix} 1 & -7 \\ 0 & 3 \end{bmatrix}\begin{bmatrix} -1 & -3 \\ 1 & 1 \end{bmatrix}$

   [Option ID = 36983]

4. $\begin{bmatrix} -5 & -7 \\ 3 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ 1 & -7 \end{bmatrix}\begin{bmatrix} 2 & 0 \\ 1 & 1 \end{bmatrix}$

   [Option ID = 36984]

15) The function $f(x) = x^{|x|}$ is

[Question ID = 9247]

1. Continuous everywhere but not differentiable at $x = 0$

   [Option ID = 36985]

2. Continuous and differentiable everywhere

   [Option ID = 36986]

3. Not continuous at $x = 0$

   [Option ID = 36987]

4. None of these

   [Option ID = 36988]

16)

The slope of tangent to the curve $x = t^2 + 3t - 8$ and $y = 2t^2 - 2t - 5$ at the point $(2, -1)$ is

[Question ID = 9248]

1. $\frac{22}{7}$

   [Option ID = 36989]

2. $\frac{6}{7}$

   [Option ID = 36990]

3. $-\frac{6}{7}$

   [Option ID = 36991]

4. -6

   [Option ID = 36992]

17) If $\int \frac{x^3}{\sqrt{1+x^2}} dx = a(1+x^2)^{3/2} + b\sqrt{1+x^2} + c$, then

[Question ID = 9249]

1. $a = \frac{1}{3}, b = 1$

   [Option ID = 36993]

2. $a = -\frac{1}{3}, b = -1$

   [Option ID = 36994]

3. $a = -\frac{1}{3}, b = 1$

   [Option ID = 36995]

4. $a = \frac{1}{3}, b = -1$

   [Option ID = 36996]

18) If $y = e^{-x}(A\cos x + B\sin x)$, then y is a solution of

[Question ID = 9250]

1. $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 2y = 0$

   [Option ID = 36997]

2. $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$

   [Option ID = 36998]

3. $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} + 2y = 0$

[Option ID = 36999]

4. $\dfrac{d^2y}{dx^2} + 2y = 0$

[Option ID = 37000]

19) If two events are independent, then [Question ID = 9251]
1. They must be mutually exclusive [Option ID = 37001]
2. The sum of their probabilities must be equal to 1 [Option ID = 37002]
3. (1) and (2) both are correct [Option ID = 37003]
4. None of these is correct [Option ID = 37004]

20)

The vector $\vec{a} + \vec{b}$ bisects the angle between the non-collinear vectors $\vec{a}$ and $\vec{b}$, if

[Question ID = 9252]

1. $\vec{a} = 2\vec{b}$

[Option ID = 37005]

2. $2\vec{a} = \vec{b}$

[Option ID = 37006]

3. $\vec{a} = \vec{b}$

[Option ID = 37007]

4. $\vec{a} = 3\vec{b}$

[Option ID = 37008]

21)

The plane $2x - 3y + 6z - 11 = 0$ makes an angle $\sin^{-1}\alpha$ with x-axis. The value of α is equal to

[Question ID = 9253]

1. $\dfrac{\sqrt{3}}{2}$

[Option ID = 37009]

2. $\dfrac{2}{7}$

[Option ID = 37010]

3. $\dfrac{\sqrt{2}}{3}$

[Option ID = 37011]

4. $\dfrac{3}{7}$

[Option ID = 37012]

22) Corner points of the feasible region for a Linear Programming Problem are (0,2), (3, 0), (6, 0), (6, 8) and (0,5). Let F=4x +6y be the objective function. The minimum value of F occurs at [Question ID = 9254]
1. (0, 2) only [Option ID = 37013]
2. (3, 0) only [Option ID = 37014]
3. The mid-point of the line segment joining the points (0, 2) and (3, 0) only [Option ID = 37015]
4. Any point on the line segment joining the points (0, 2) and (3, 0) [Option ID = 37016]

23)

If $P(A) = \dfrac{2}{5}, P(B) = \dfrac{3}{10}$ and $P(A \cap B) = \dfrac{1}{5}$. Let A' and B' denote the complement of A and B respectively, then $P(A'/B')P(B'/A')$ is equal to

[Question ID = 9255]

1. $\dfrac{5}{6}$

[Option ID = 37017]

2. $\dfrac{5}{7}$

[Option ID = 37018]

3. $\dfrac{25}{42}$

[Option ID = 37019]
4. 1 [Option ID = 37020]

24) Solve $\displaystyle\int \dfrac{\sin^6 x + \cos^6 x}{\sin^2 x \cos^2 x}\, dx$

[Question ID = 9256]

1. $\tan x - \cot x - 3x + C$

[Option ID = 37021]

2. $\sin x - \cot x + x + C$

[Option ID = 37022]

3. $\tan x - \cos x - 3x + C$

[Option ID = 37023]

4. $\sin x - \cos x - x + C$

[Option ID = 37024]

25) Let the variance of 'n' observations be σ^2. If each observation is multiplied by some constant 'a', then the new variance is [Question ID = 9257]
1. σ^2 [Option ID = 37025]
2. $a^2\sigma^2$ [Option ID = 37026]
3. $a\sigma$ [Option ID = 37027]
4. $a\sigma^2$ [Option ID = 37028]