BRAIN INTERNATIONAL SCHOOL

SUBJECT: ENGLISH   CLASS: XI   July,2021

The Landscape of the Soul

Q1. How was Quinten Metsys able to marry the painter's daughter?

Q2. What is the fundamental notion of Daoism?

Q3. What does a European painter want from the viewer?

The Laburnum Top

Q4. What is the significance of 'yellow' in the poem?

 Q5. Reference to Context:

Then sleek as a lizard, and alert, and abrupt,
She enters the thickness, and a machine starts up
Of chittering and a tremor of wings, and trilling
The whole tree trembles and thrills.

   a) Who is 'she' in the second line? Where does she enter?
   b) What does 'machine' refer to in the extract?
   c) Find a word from the extract which is the synonym of 'entire'.

Ranga's Marriage

Q6. What were Ranga's views about marriage at the beginning of the story?

Q7. Why and how did the narrator bring Ratna and Ranga closer?

Q8. How does the narrator describe Hosahalli village?

Writing Skills

Q9. You are the Director of Disaster Management Authority. You want to make people aware about earthquakes. Draw a poster for the same.

Q10. Write a suitable matrimonial advertisement for your smart, educated, good-looking daughter. Draft an advertisement for publication in the newspaper. You are Rajat/Radhika Sharma, resident of D-71, Karol Bagh, Delhi.
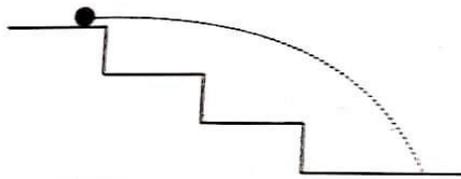
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SUBJECT: PHYSICS **CLASS-XI** **JULY, 2021**

1. A ball whose kinetic energy is E, is projected at an angle of 45° to the horizontal. The kinetic energy of the ball at the highest point of its flight will be
    (a) E (b) $E/\sqrt{2}$ (c) $E/2$ (d) zero

2. A projectile can have the same range 'R' for two angles of projection. If 'T_1' and 'T_2' to be time of flights in the two cases, then the product of the two time of flight is directly proportional to.
    (a) R (b) $\frac{1}{R}$ (c) $\frac{1}{R^2}$ (d) R^2

3. A ball is thrown from a point with a speed $'v_0'$ at an elevation angle of θ. From the same point and same instant, a person starts running with a constant speed $\frac{v_0}{2}$ to catch the ball. Will the person be able to catch the ball? If yes, what should be the angle of projection θ ?
    (a) No (b) Yes, 30° (c) Yes, 60° (d) Yes, 45°

4. A particle is projected 60° to the horizontal with a kinetic energy K. The kinetic energy at the highest point is
    (a) $K/2$ (b) K (c) Zero (d) $K/4$

5. A boy can throw a stone up to a maximum height of 10 m. The maximum horizontal distance that the boy can throw the same stone up to will be :
    (a) $20\sqrt{2}$ m (b) 10 m (c) $10\sqrt{2}$ m (d) 20 m

6. A projectile is given an initial velocity of $(\hat{\imath} + 2\hat{\jmath})$ m/s, where $\hat{\imath}$ is along the ground and $\hat{\jmath}$ is along the vertical. If g $= 10\ m/s^2$, the equation of its trajectory is :
    (a) $y = x - 5x^2$ (b) $y = 2x - 5x^2$ (c) $4y = 2x - 5x^2$ (d) $4y = 2x - 25x^2$

7. The horizontal and vertical distances travelled by a particle in time t are given by x = 6t and y = $8t - 5t^2$. If g = 10 m/s^2, then the initial velocity of the particle is-
    (a) 8 m/sec (b) 10 m/sec (c) 5 m/sec (d) zero

8. A projectile thrown with a speed v at an angle θ has a range R on the surface of the earth. For same v and θ , its range on the surface of moon will be-
    (a) R/6 (b) 6R (c) R/36 (d) 36 R

9. The maximum range of a projectile is 22 m. When it is thrown at an angle of 15° with the horizontal, its range will be-
    (a) 22 m (b) 6 m (c) 15 m (d) 11 m

10. The equation of projectile is y $= 16x - \frac{5x^2}{4}$. The horizontal range is-
    (a) 16 m (b) 8 m (c) 3.2 m (d) 12.8 m

11. A particle is projected with a velocity of 20 m/s at an angle of 30° to an inclined plane of inclination 30° to the horizontal. The particle hits the inclined plane at an angle 30°, during its journey. The time of flight is –
    (a) $\frac{4}{\sqrt{3}}$ (b) $\frac{2}{\sqrt{3}}$ (c) $\sqrt{3}$ (d) $\frac{\sqrt{3}}{2}$

12. An aeroplane is flying at a height of 1960 m in horizontal direction with a velocity of 360 km/hr. When it is vertically above the point. A on the ground, it drops a bomb. The bomb strikes a point B on the ground, then the time taken by the bomb to reach the ground is-
    (a) $20\sqrt{2}$ sec (b) 20 sec (c) $10\sqrt{2}$ sec (d) 10 sec

13. A ball is thrown horizontally from a point 100 m above the ground with a speed of 20 m/s.Find (a) the time it takes to reach the ground, (b) the horizontal distance it travels before reaching the ground, (c) the velocity (direction and magnitude) with which it strikes the ground.

14. In a soccer practice session the football is kept at the centre of the field 40 yards from the 10 ft high goalposts. A goal is attempted by kicking the football at a speed of 64 ft/s at an angle of 45° to the horizontal. Will the ball reach the goal post?

15. A person standing on the top of a cliff 171 ft high has to throw a packet to his friend standing on the ground 228 ft horizontally away. If he throws the packet directly aiming at the friend with a speed of 15.0 ft/s, how short will the packet fall?

16. A ball is projected from a point on the floor with a speed of 15 m/s at an angle of 60° with the horizontal. Will it hit a vertical wall 5 m away from the point of projection and perpendicular to the plane of projection without hitting the floor? Will the answer differ if the wall is 22 m away?

17. Find the average velocity of a projectile between the instants it crosses half the maximum height. It is projected with a speed u at an angle θ with the horizontal.

18. A bomb is dropped from a plane flying horizontally with uniform speed. Show that the bomb will explode vertically below the plane. Is the statement true if the plane flies with uniform speed but not horizontally?

19. A boy standing on a long railroad car throws a ball straight upwards. The car is moving on the horizontal road with an acceleration of 1 m/s^2 and the projection velocity in the vertical direction is 9.8 m/s. How far behind the boy will the ball fall on the car?

20. A staircase contains three steps each 10 cm high and 20 cm wide (fig). What should be the minimum horizontal velocity of a ball rolling off the uppermost plane so as to hit directly the lowest plane?

SUBJECT: CHEMISTRY   **CLASS-XI**   **JULY, 2021**

CHEMICAL BONDING AND MOLECULAR STRUCTURE

1. Give two examples of compounds in which the central atom has incomplete octet?
2. What hybrid orbitals would be expected for the central atom in the followings? a) $AIBr_3$ (b) $BeCl_2$ (c) $SiCl_4$ (d)BeF_3^- (e) $AsCl_3$

3. State the hybridization of N in NH^+_4 and B in BF^-_4 ion. What is the molecular shape?

4. N_2 is more stable than O_2. Explain on the basis of molecular theory.

5. Give one example of intramolecular hydrogen bond.

6. Glycerol is more viscous than ethanol. Explain.

7. Give reasons for the following:
   a) Ionic compounds are soluble in water whereas covalent compounds are mostly insoluble in water.
   b) Ionic compounds have higher melting points than covalent compounds.

8. On the basis of hybridization, explain the shape of iodine heptaflouride

   and sulphur tetrafluoride.

9. How would V B theory explain the bonding in H_2Se? Use sketches of orbitals to show how the bonds are formed.

10. Differentiate between bonding and ant bonding orbitals.

11. What are the conditions for combination of atomic orbitals? Which species out of H_2, H^+_2, H^-_2 are paramagnetic and why?

12. Explain:

    (a) HF has higher boiling point than HCl.
    (b) Ice is lighter than water.

13. He_2 cannot exist because

   (i)inter electronic repulsion is greater   (ii) bond order is zero

   (iii)energy is not sufficient to make bond   (iv) two valence electrons

14. $N(CH_3)_3$ is pyramidal because

   (i) 'C' atom has vacant d-subshell (ii) 'N' atom has one lone pair of electrons

   (iii) 'N' has 5 valence electrons (iv) bond pair-bond pair repulsion is greater

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SUBJECT:BIOLOGY   **CLASS XI**   **JULY' 2020**

Morphology of Flowering Plants:

1. How many ovule(s) is/are seen in the ovary of sunflower?
2. Represent diagrammatically a cymose inflorescence.
3. What is a perianth? What term is given to its constituent members? Give an example.
4. How is valvate aestivation different from twisted aestivation?
5. Name one plant of Liliaceae as a source for each of the following:
   (*a*) Medicine
   (*b*) Vegetables
   (*c*) Colchicine

Anatomy of Flowering Plants:

6. Interfascicular cambium and cork cambium are formed due to :
   (a) cell division   (b) cell differentiation   (c) cell dedifferentiation   (d) redifferentiation

7. Explain the process of secondary growth in the stems of woody angiosperms with the help of schematic diagrams. What is its significance?
8. Draw a diagram of a portion of the cross section of a monocot stem and label six parts in it.
9. Answer the following with reference to the anatomy of dicot root:
   (*a*) Where is pericycle located?
   (*b*) How are xylem vessels arranged?
   (*c*) What do you call such an arrangement?
   (*d*) Which type of cells constitute the cortex?
10. Name the three basic tissue systems in the flowering plants. Give the tissue names under each system.

Structural Organisation in Animals :

11. Name the kind of tissue which forms the inner lining of blood vessels.
12. What are neuroglial cells.
13. How dense regular and dense irregular connective tissues are different from each other.
14. Mention four sites in an adult human body, where cartilage is present.
15. Differentiate between smooth muscles and cardiac muscles.

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Computer Science Assignment   **Class XI**   **July' 2021**

CH-PYTHON PROGRAMMING FUNDAMENTALS

1. What is the extension of a Python file?

2. What is the shortcut key to execute current Python code?

3. What is a variable? What are the rules for forming valid variable names in Python?

4. How does a simple assignment statement work?

5. Which function is used to know the address of the memory location to which a variable is referring?

6. Why is python called a dynamic type language?

7. Write Python statements to get a list of Python keywords.

8. What is an augmented assignment operator? Give an example to explain.

9. Identify invalid variable names from the following, give reason for each:

    Group, if, int, total marks, S.I., volume, tot_strength, #tag, tag$

10. Which function(s) is/are used to input:

    (i) string (ii) integer (iii) floating point number (iv) any real number

11. Write a Python statement for each of the following:

    (i) To input the residential address of a person.

    (ii) To input the age (in years) of a person.

    (iii) To input the maximum temperature (in degree Celsius) of a day.

    (iv) To input the roll number of a student.

    (v) To input the telephone number of a person.

12. Find error(s), if any, in each of the following code segments:

    (1)   x=3   (2)   x=-2   (3)   a=5

                 x+2=y   y=2   b=2*a

                 x+=y   x+=y   a+=a+b

```
            print(x and                  y-x                          b*=a+b
            y)                            print(x,y)                   print(a,b)
(4)         p=10              (5)         p=5%2             (6)         p=21//5
            q=20                          q=p**4                       q=p%4
            p*=q/3                        r=p//q                       r=p*q
            q+=p+q*2                      p+=p+q+r                     p+=p+q-r
            print(p,q)                    r+=p+q+r                     r*=p-q+r
                                          q-=p+q*r                     q+=p+q
                                          print(p,q,r)                 print(p,q,r)
```

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CLASS: XI   **SUBJECT: PSYCHOLOGY**   **JULY'21**

CHAPTER 3: THE BASES OF HUMAN BEHAVIOR

1. Differentiate between sensory and motor nerves.
2. What is "All or none law"?
3. Discuss the functions of peripheral nervous system.
4. What are the important determinants of human behavior?
5. Draw a well-labelled diagram of a neuron.

CHAPTER 4: HUMAN DEVELOPMENT

1. Explain the principles of heredity.
2. What are the two features of proportional thought?
3. How do adolescents form their own identity?
4. Discuss in detail: Delinquency.
5. Describe in detail how the various abilities occur in the stage of infancy.

SUBJECT : MATHEMATICS   **CLASS : XI**   **JULY 2021**

CHAPTER : PMI , COMPLEX NUMBERS

Q1. Let P(n) be a statement ; $2^n < n, n \in N$. Show that statement is not true for any n.

Q2. If P(n) is a statement "$12n + 5$ is a multiple of 13". Show that P(2) is false whereas P(5) is true.

Q3. Using the principle of mathematical induction, prove that 3^{2n} when divided by 8, leaves the remainder 1, for all $n \in N$.

Q4. Using the principle of mathematical induction, prove that $2^{3n} - 1$ is divisible by 7 for all $n \in N$.

Q5. Using the principle of mathematical induction, prove that $\left(1 + \frac{1}{1}\right) \left(1 + \frac{1}{2}\right) \dots \left(1 + \frac{1}{n}\right) = (n + 1)$ for all $n \in N$.

Q6. Prove that $1 + 2 + 3 + \dots + n < \frac{1}{8}(2n + 1)^2$, for all $n \in N$.

Q7. Using the principle of mathematical induction, prove that $41^n - 14^n$ is divisible by 27, for all $n \in N$.

Q8. Prove that $(1 + x)^n \geq 1 + nx \; for \; x > 0, n \in Z^+$.

Q9. Using the principle of mathematical induction, prove that $1^2 + 2^2 + \dots + n^2 > \frac{n^3}{3}$ for all $n \in N$.

Q10. Using the principle of mathematical induction, show that $n(n + 1)(n + 5)$ is natural number, for all $n \in N$.

Q11. Using the principle of mathematical induction, prove that $\frac{n^5}{5} + \frac{n^3}{3} + \frac{7n}{15}$ is a natural number, for all $n \in N$.

Q12. Prove that $2n + 7 < (n + 3)^2$ for all $n \in N$.

Q13. Using the principle of mathematical induction, prove that $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots + \frac{1}{2^n} = 1 - \frac{1}{2^{n-1}}$ $n \in N$.

Q14. Solve for $x : x^2 + 24 = 0$

Q15. Express, $\left(- \sqrt{3} + \sqrt{-2}\right)\left(2\sqrt{3} - i\right)$, in the form $a + ib$.

Q16. Represent the complex number $-1 - i$, in the polar form.

Q17. What is conjugate of, $\dfrac{\sqrt{5+12i} + \sqrt{5-12i}}{\sqrt{5+12i} - \sqrt{5-12i}}$?

Q18. Represent the complex number, $\dfrac{-4}{1+\sqrt{3}\,i}$ in polar form.

Q19. If $(1 + 2i)(2 + 3i)(3 + 4i) = x + iy$. Show that $x^2 + y^2 = 1625$.

Q20. If $a + ib = \dfrac{c+i}{c-i}$, where a, b, c are real, prove that, $a^2 + b^2 = 1$ and $\dfrac{b}{a} = \dfrac{2c}{c^2-1}$.

Q21. If $z = 1 + i$, evaluate $z^3 - 2\,z^2 + 3z - 4$.

Q22. If $4x + i\,(3x - y)$ is conjugate of $3 + 6i$ for $x, y \in R$, find $x \ and \ y$.

Q23. Where does z lies on plane if $\left|\dfrac{z-5i}{z+5i}\right| = 1$?

Q24. $|z_1| = |z_2| = |z_3| = 1$ show that $|z_1 + z_2 + z_3| = \left|\dfrac{1}{z_1} + \dfrac{1}{z_2} + \dfrac{1}{z_3}\right|$.

Q25. Find the square roots of $-16 + 30i$.

Q26. Find real θ, such that $\dfrac{3+2i \sin \theta}{1-2i \sin \theta}$ is purely real.

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SUBJECT: PHYSICAL EDUCATION   CLASS XI   July-2021

UNIT 1: Changing Trends & Career in Physical Education

Q1. What is Physical Education? Write down its significance.

Q2. Explain the aim and objectives of physical education?

Q3. Discuss about the various career options in Physical Education.

Q4. Write down about various competitions at national and international level.

Q5. White a short note on Khelo India Program.