RAINBOW PUBLIC SCHOOL

[Affiliated to CBSE 10+2, New Delhi]

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HOLIDAY HOME WORK (2024–25)

CLASS – XII (Science)

CLASS – XII SUBJECT – ENGLISH

Answer the following questions briefly:

1. You are Sujoy/ Sujata of Nehru colony, Indore. You recently visited Shimla with your family . You were perturbed to see the tourists throwing empty water bottles and cans all over the place. Write a letter to the editor of National Daily in about 120 – 150 words expressing your concern and offering suggestions to improve the situation.
2. You have realised the necessity of education and financial independence of women for their family, society and in turn for the nation. Write a letter to the editor, 'The National Times', highlighting your ideas on the importance of education of women leading to a better status for them . You are Tarun / Taruna, of B- 7 / 9, Mall road Delhi.
3. The managing director of new engineers limited desires to invite his staff to the new year party. Design an informal invitation in about 50 words for the occasion.
4. Mr. and Mrs. Sinha desire to organise a party on the occasion of the engagement of their daughter. Draft a formal invitation to be sent to their friends, colleagues and relatives .
5. You are Dr Mahesh Tripathi and you have received an invitation from the Director, common health services, New Delhi to attend a workshop on child care on 15 May many leading practitioners of the state have been invited to grace the occasion. Respond informally to the invitation showing your acceptance in about 50 words.
6. The last lesson reflects the flaws in human characters that led to the sad plight of people in Alsace. Substantiate your answer with evidence from the text .
7. Give a character sketch of M. Hamel.
8. Describe the third level as a science fantasy.
9. Do you think that the third level was a medium of escape for Charley? Why?
10. The modern world is full of insecurity, fear, war, worries, tension and stress. What are the ways in which we attempt to overcome them?

CLASS – XII SUBJECT - PHYSICS

I. Write the activities in a separate project work.

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
3. To measure resistances, voltage (AC/DC), current (AC) and check continuity of a given circuit using multimeter.
4. To study variation in potential drop with length of a wire for steady current.
5. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.
6. To observe diffraction of light due to a thin slit.
7. To study effect of intensity of light on an LDR.
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

CLASS – XII SUBJECT - CHEMISTRY

1. Define the term solution. How many types of solutions are formed? Write briefly about each type with an example.
2. Give an example of a solid solution in which the solute in gas.
3. Define the following terms :-
   (a) Mole fraction (b) Molality (c) Molarity (d) Mass percentage
4. Concentrated nitric acid used in laboratory work is 68% nitric acid by mass in aqueous solution. What should be the molarity of such a sample of the acid if the density of the solution is 1.504 g/ml ?
5. A solution of glucose in water is labeled as 10% w/w. What would be the molality and mole fraction of each component in the solution? If the density of solution is 1.2 g/ml, then what shall be the molarity of the solution?
6. Explain the bonding in coordination compound in terms of werner's postulates.
7. $FeSO_4$ solution mixed with $(NH_4)_2SO_4$ solution in 1:1 molar ratio gives the test of Fe^{2+} ion but $CuSO_4$ solution mixed with aqueous ammonia in 1:4 molar ratio does not give the test of Cu^{2+} ion. Explain why?
8. Explain with two examples each of the following coordination entity, ligand, coordination number, coordination polyhedron, homoleptic and he teroleptic.
9. What is meant by unidentate, didentate and ambidentate ligands? Give two examples for each.
10. Specify the oxidation numbers of the metals in the following coordination entities :-
    (a) $[Co(H_2O)(CN)(en)_2]^{2+}$ (b) $[Pt\ Cl_4]^{2-}$ (c) $[Cr(NH_3)_3\ Cl_3]$
    (d) $[Co\ Br_2(en)_2]^{+}$ (e) $K_3[Fe(CN)_6]$

CLASS – XII SUBJECT - BIOLOGY

1. Define : (a) Ornithophily (b) Tripple fusion (c) Emasculation
   (d) Apomixis (e) Dichogamy (f) Geitonogamy
2. Differentiate (within 3 pts)
   (a) Microsporogenesis & Megasporogenesis
   (b) Dicot embryo & Monocot embryo
   (c) Wind pollinated & Insect pollinated Flower
3. What is double fertilization & their significance.
4. Why is apple called a false fruit? Which part of the flower forms this fruit.
5. List the four post fertilization event in angiosperm & Discuss embryogenesis.
6. Draw a wall labelled diagram of a mature anatropous ovule with ploidy of different parts.
7. What is self incompatibility?
8. Define megasporogenisis. Write the mechanism of producing female gametophyte.
9. What is pollen – pistil infraction & how is it mediated.
10. Draw an enlarge view of one microsporangium of a mature anther.

CLASS – XII SUBJECT - MATHEMATICS

1. Let $tan^{-1}x, tan^{-1}y, tan^{-1}z$ be the angles of a triangle ABC, then prove that
$$\frac{x}{1+x^2}+\frac{y}{1+y^2}+\frac{z}{1+z^2}=\frac{2xyz}{\sqrt{(1+x^2)(1+y^2)(1+z^2)}}$$
2. If α and β are roots of the equation $cot^{-1}x - cot^{-1}(x+2) = 15^0$ then find the value of $-(\alpha+\beta)$.
3. Let $f(x) = tan^{-1}(x^2 - 18x + a) > 0; \nexists x \in R$ then find Range of 'a'.
4. Let $f(x) = cos\{tan^{-1}(sin(cot^{-1}x))\}$ the simplest form of $f(x)$ can be written as $\left(\frac{x^2+A}{x^2+B}\right)^{\frac{1}{2}}$ then find the value of (A+B).

5. Evaluate :

$$\sum_{n=1}^{\infty} tan^{-1}\left(\frac{1}{2^n + 2^{1-n}}\right)$$

6. Let $\lambda = sec^2(tan^{-1}2) + cosec^2(cot^{-1}3) + 2$ then find the value of $17\lambda^2 + 7$.

7. Let $f(x) = \sum_{r=1}^{n} cot^{-1}(r^2 + r + 1)$

also $\lim_{n \to \infty} f(n) = \pi A$

then find the value of A.

8. Evaluate : $\sum_{n=1}^{33} cot^{-1}(1 + \sum_{k=1}^{n} 2k)$

9. If M and m are the greatest and least value of the function $f(x) = (cos^{-1}x)^2 + (sin^{-1}x)^2$ then find the value of $\left(\frac{M+m}{m}\right)^3$.

10. Let $f(x) = 1 + 2\left(sin\left(\frac{e^x}{e^x + 1}\right)\right); x \geq 0$ is bijective function then find $f^{-1}(x)$.

CLASS – XII SUBJECT - PE

1. What is the main function of sports management?
2. If there are 12 teams participating in a tournament, how many teams will be there in the Upper and Lower Half?
3. What is concept of Good Posture?
4. What are causes of less participation of womens in sports, in India?
5. What are the physical benefits of participation in sports?
6. Draw a fixture of 6 teams on a league basis following the cyclic method.
7. What do you mean by organising?
8. What is Directing? Explain.
9. Name of the five functions of a sports even management body.
10. What do you mean by 'seeding'?

CLASS – XII SUBJECT - MUSIC

1. हिंदुस्तानी संगीत एवं कर्नाटकी संगीत से आप क्या समझते हैं?
2. ध्वनि और नाद में अंतर स्पष्ट करें।
3. श्रुति और स्वर विभाजन को दर्शाएँ एवं परिभाषित करें।
4. पढ़ाए गए एक सरगम गीत को हारमोनियम सहित गाना।
5. एक भजन का तैयारी करें।

CLASS – XII **SUBJECT - CS**

1	Sanjay is a software developer for KVS. He has written a program to create a "**rps.txt"** file to store the data. Fill the blank with appropriate command / method f = open('rps.txt', 'w') f.write('This is my Record File') # Create save and close the filef. _____#Line 1 #Open the file in read from beginning modef = open('rps.txt', '_____') #Line 2 #Now read from the beginning first 5charactersf.seek(_____,_____) #Line 3 #Now read from the end last 12 charactersf.seek(_____,_____) #Line 4 # reading the entire content of file from current positionrea = f._____#Line 5 print(rea) f.close() i) Write the method to save and close the file 'rps.txt' ii) Write the file open mode to read from beginning iii) Write the method parameter to read from beginning to 5 characters (offset) iv) Write the method parameter to read from end to 12 characters (offset) v) Write the method to read the file from correct position.
2	Evaluate the following expressions: a) 6 + 3 * 4**2 - 5 // 4 b) 12 > 15 and 15 < 12 or not 18 > 31
3 4	What is the difference between Packet switching and circuit switching techniques? In networking, what is WAN? How is it different from LAN?
5	Expand the following terms: i) GPS ii) ATM iii) GPRS iv) IRC
6	def simple_interest(p, r, t): return (p*r*t)/100 print (simple_interest(100,5,2)) Identify the formal and actual parameters in the above code snippet. Define formal and actual parameters in a function.

7	c = 10 def add(): global c c = c + 2 print("Inside add():", c) add() c=15 print("In main:", c) output: Inside add() : 12 In main: 15 Consider the above program and justify the output. What is the output if "global c " is not written in the function add().
8	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum AND minimum values that can be assigned to the variable Num when P = 7 import random as rval = 35 P = 7 Num = 0 for i in range(1, 5): Num = val + r.randint(0, P - 1)print(Num, " $ ", end = "") P = P - 1 (a) 41 $ 38 $ 38 $ 37 $ (b) 38 $ 40 $ 37 $ 34 $ (c) 36 $ 35 $ 42 $ 37 $ (d) 40 $ 37 $ 39 $ 35 $

9	Find and write the output of the following Python code: **def fun(s):** **n = len(s)** **m=''** **for i in range(0, n):** **if (s[i] >= 'a' and s[i] <= 'm'):** **m = m + s[i].upper()** **elif (s[i] >= 'n' and s[i] <= 'z'):** **m = m + s[i-1]** **elif (s[i].isupper()):** **m = m + s[i].lower()** **else:** **m = m + '#'** **print(m)** **fun('Gini%Jony')**
10	Write a function count_is_as() in Python that counts the number of “is” and “as” words present in a text file “STORY.TXT”. If the “STORY.TXT” contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a* *Fox.The Story is very* *Interesting.* The output of the function should be: Count of is/as in file: 4 Write a function SRCount() in Python, which should read each character of atext file STORY.TXT, should count and display the occurrence of alphabets S and R (including small cases s and r too). If the “STORY.TXT” contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a* *Fox.The Story is very* *Interesting.* The SRCount() function should display the output as: S or s : 9 R or r : 5

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