

D.A.V. CENTENARY PUBLIC SCHOOL, BAHADURGARH  
CLASS- 11<sup>TH</sup> SCIENCE  
SESSION-2023-2024  
HOLIDAY HOMEWORK



ENGLISH

1) Prepare a chart on the topics given below:

- Tenses (R.N.1 - 10)
- Reported Speech (R. N. 11 - 20)
- Prepositions (R. N. 21 -30)
- Conjunctions (R. N. 31 -40)
- Active - Passive Voice (R. N. 40 -last)

2) Write and learn 25 antonyms, synonyms and one word substitutions each.(words may be taken from text book chapters that are done till now).

3) Write an Acrostic Poem (along with the picture if possible) .on any one topic of your choice:

- LABURNUM TOP
- THE PHOTOGRAPH

(Ornament your poem with the use of literary devices that you learnt in the poem and present your poem beautifully on A. 4 size sheet.)

4)Prepare a debate ( for / against) on the given topic:

- The Internet can not replace a classroom teacher. (R.N.1 - 10)
- Students must wear uniforms. (R. N. 11 - 20)
- Animals should be banned from circuses. (21 - 30)
- Schools Should promote the students to join coaching institutes ( R. N. 30 - last)

5)Activity:( to be done on A.3 sheet) - With pictures and examples

a) Poetic Devices -

- Poetic Device - Alliteration(1 - 10)
- Poetic Device - Oxymoron(11-20)
- Poetic Device - Transferred Epithet(21 -30)

b) Slogan writing- about 'Save Water Save Life' / 'Save Trees Save Life' - highlighting the importance of water / trees for life along with poster. (Any one of your choice)(31 -last)

6) Write recapitulating points of all the chapters done in literature. (in the form of Mind - map / Flow chart)

7) Draft Advertisement on the given topics: (A 4 sheet)

- You are General Manager of Arena Export Company, Mumbai. You want to appoint a PA for the company.
  - You are the Principal of ABC School, Pune. You require Cricket and hockey coaches for your school. Mention - regarding the age, experience, qualification etc.
- 8) Twist in the Tale - The Address, The Summer of Beautiful White Horse
- We're not Afraid to Die If we can all be Together
- 9) Prepare a Wall Hanging of all the SDG's

## PHYSICS

### Dimensional analysis

1. If the units of energy, force and velocity are 50 J, 5 N and 2m/ s, what will be unit of mass, length and time?
2. The units of power, force and time are 1 kW, 1kN and 1 milli second. Find the unit of mass and length.
3. What will be the value of G in CGS units if in SI units it is  $6.67 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$
4. What will be the dimensions of **a/b** in the relation **E= b-x<sup>2</sup>/ at**, where E is energy, x is distance and t is time.
5. In the relation **h= 2t Cos  $\alpha$ / r<sup>2</sup>pg**, where h is the height, T is surface tension p is density and r is the radius of a capillary tube,  $\alpha$  is angle of contact and g is acceleration due to gravity. Verify the correctness of the equation.
6. Give one example each of physical quantities which have SI unit but no dimensions, which neither have unit nor dimension.
7. Acceleration due to gravity is 10m/s<sup>2</sup>. Determine its value in cm/minutes<sup>2</sup>.
8. If the units of force and length, each are doubled then how many times the unit of energy, Surface tension and stress be affected?
9. If velocity, density and frequency are taken as fundamental quantities, what will be the dimensions of linear momentum and surface tension?

10. If velocity, acceleration and force are chosen as fundamental units, what will be the dimensions of linear momentum, angular momentum and Young's modulus of elasticity?

11. A piece of lead has a mass of 23.94g and a volume of 2.10 cm<sup>3</sup>. Calculate the density in SI units.

12. If force, length and time are fundamental quantities, determine the dimensions of mass.

13. Check the dimensional correctness of the following equation –

$$\rho = \frac{3g}{4\pi R G}$$

14. If the mass (m) of a stone depends on velocity (v),  $\rho$  (density of water) and g, find the expression for mass.

15. Determine the expression for centripetal force if it depends on mass m, radius r and speed v of the object.

16. Obtain an expression for the height to which a fluid of density  $\rho$  and surface tension T will rise in a capillary tube of radius r. Given  $h \propto 1/r$

17. E, m, I and G denote energy, mass, angular momentum and gravitational constant respectively. Determine the dimensions of  $\mathbf{EL^2 / m^5G^2}$

18. As H(heat) depends on I, R and t, determine its formula with the help of dimensional analysis.

19. Find the dimensional formulae for the following physical quantities:

- a) Torque
- b) Coefficient of Viscosity
- c) Voltage

20. A large fluid star oscillates in shape under the influence of its own gravitational field. Using dimensional analysis, find the expression for period of oscillation (T) in terms of radius of star (R), mean density of fluid ( $\rho$ ) and universal gravitational constant (G).

21. Young's modulus of steel was calculated to be  $18 \times 10^{12} \text{N/m}^2$ . Express it in CGS units.

22. If energy E is proportional to mass m and c, the speed of light, determine the relation in these quantities using the concept of dimensions.

23. If force (F) acceleration (A) and time (T) are taken as fundamental units, then find the dimension of energy.

24. Find the dimensions of latent heat and specific heat?

25. Determine which of the following are dimensionally correct-

- (i) Pressure = Energy per unit volume
- (ii) Pressure = Momentum  $\times$  volume  $\times$  time

#### Error Analysis

1. If  $P = \frac{c^3 b^2}{cd}$ , and percentage error in c, b, d are 1%, 2% and 3% respectively, calculate the % error in P.
2. A force of  $(2500 \pm 5)$  is applied over an area of  $(0.32 \pm 0.02) \text{ m}^2$ . Calculate the error in the measurement of pressure.
3. To find the value of g, the following measurements were made- length l of thread  $l = 100 \pm 0.2$  cm and time period of oscillation  $t = (2 \pm 0.1)$  s. Find the % error in the measurement of g.
4. If two resistors of resistance  $R_1 = (5 \pm 0.2) \Omega$  and  $R_2 = (10 \pm 0.5) \Omega$  are connected, (i) in series; (2) in parallel. Find the equivalent resistor in each case in terms of % error.
5. The force acting on an object of mass m travelling at velocity v in a circle of radius r is  $F = \frac{mv^2}{r}$ . The measurements recorded as  $m = 3.5 \text{ kg}$ ,  $v = 20 \text{ m/s}$ ,  $r = 12.5 \text{ m}$ ,  $F = 0.1 \text{ kg}$ . Find the maximum possible fractional and percentage error in the measurement of force.
6. A student performed an experiment and found following values of the refractive index of a liquid:  
1.29, 1.33, 1.34, 1.35, 1.32, 1.36, 1.30, 1.33  
Find the mean value of refractive index, the mean absolute error, the relative error and the percentage error.
7. For the estimation of Young's modulus  $Y = \frac{4Mg}{\pi d^2 L}$  For the specimen of wire, following observations were recorded:  $L = 2.890$ ,  $M = 3.00$ ,  $d = 0.082$ ,  $g = 9.81$ ,  $l = 0.087$ . Calculate the maximum percentage error in the value of Y and mention which physical quantity causes maximum error.

8. Give the number of significant digits in each of the following measurements:
- 1278.50
  7. 8.002
  13. 43.050
  2. 120000
  8. 823.012
  3. 90027.00
  - 0.0053567
  - 542000.
  - 0.00730
9. Perform the following operations giving the proper number of significant figures in the answer:
- $25. 23.4 \times 14$
  - $28. 0.005 - 0.0007$
  - $26. 7.895 + 3.4$
  - $29. 7.895 \div 34$
  - $27. 0.0945 \times 1.47$
  - $30. 0.2 / 0.0005$
10. Prepare one working model related to Gravitation.

## CHEMISTRY

**#All Students have to prepare 1 model ( working or non working)and 1 chart paper either of your choice or from given topics**

- **Structure of Atom ( Roll no. 1 to 10) ( roll. No 21 to 35 XI E)**
- **Rutherford scattering experiment( working with Led )( roll no. 11 to 20)**
- **3 D shapes of orbitas ( s, p, d) ( roll no. 21 to 30)**
- **Shapes of molecular shapes with help of clay ( roll no. 31 to 40)**
- **Line spectrum of hydrogen ( Roll no. 1 to 10 XI E)**
- **Periodic table ( roll no. 11 to 20 XI E)**

**# All students have to collect or click pictures from chemistry in daily life and make project report of the same on a Chart Paper using creative ideas.**

### **Basic concepts of chemistry**

- How many moles of NaOH are contained in 27 ml of 0.15 M?
- Calculate the number of atoms in each of the following:

a - 52 moles of He

b - 52 u of He

3. Calculate the molarity of 1 L of solution of ethanol in water in which the mole fraction of

ethanol is 0.040.

4. If ten volumes of dihydrogen gas reacts with five volumes of dioxygen gas, how many volumes

of water vapour could be produced?

5. Calculate the molarity of NaOH in the solution prepared by dissolving its 4gms in enough water

to form 250mL of the solution.

6. The density of 2 molal solution of NaOH is 1.10 g per ml. Calculate the molarity of the solution.

7. How many atoms and molecules of phosphorous are present in 124gms of phosphorous (P<sub>4</sub>)?

8. A 6.9M solution of KOH in water contains 20% by weight of KOH. Calculate the density of

solution.

9. Calculate the molality and molarity of 1 L solution of 93% H<sub>2</sub>SO<sub>4</sub>(Wt. /Vol). The density of

solution is 1.84g/ml.

### **Structure of Atom**

1. How can you show using Pauli's exclusion principle that p sub shell can have only 6 electrons?

2. What are the values of 'n' and 'l' for 6g?

3. How many number of unpaired electrons are present in Fe<sup>2+</sup> (Z=26)?

4. What is the ratio of the energy of a photon of  $\lambda = 100\text{pm}$  to that of one of  $\lambda = 200\text{pm}$ ?

5. How many radial nodes are present in 2p and 3s orbital?

6. Out of Fe<sup>2+</sup>, Fe<sup>3+</sup>, which is more stable and why?

7. Calculate the uncertainty in the position of an electron if uncertainty in its velocity is 0.001%.

The mass of electron =  $9.11 \times 10^{-31}$  kg and velocity of electron = 300m/s.

8. Account for the following.

- a. The expected electronic configuration of copper is  $[\text{Ar}] 3d^9 4s^2$  but actually it is  $[\text{Ar}] 3d^{10} 4s^1$
- b. In building up of atoms the filling of 4s orbitals occur before 3d orbitals
- c. Spin quantum number can have only 2 values  $+1/2$  and  $-1/2$
9. Write short note on the following
- Aufbau principle.
  - Heisenberg's uncertainty principle.
  - Hund's rule.
  - Photo electric effect.
  - Black body radiation
10. Derive a relationship between the wavelength associated with a moving particle and its kinetic energy.
11. Write down electronic configuration of  $\text{Fe}^{3+}$  ion and answer the following questions
- What is the number of unpaired electrons in it?
  - How many electrons in it have  $n = 3$  and  $m = 0$ ?
  - How many electrons in it have  $l = 1$ ?
  - What is the number of electron in M-shell?
12. Identify and arrange the orbitals represented by the following in decreasing order of energy
- $n = 4, l = 0$
  - $n = 3, l = 1$
  - $n = 3, l = 2$
  - $n = 3, l = 0$

### **Classification of elements & Periodicity in properties**

- Assign the position of the element having outer electronic configuration  
(i)  $ns^2 np^4$  for  $n=3$ , (ii)  $(n - 1) d^2 ns^2$  for  $n = 4$  and (iii)  $(n - 2)f^7(n - 1)d^1 ns^2$  for  $n = 6$ .
- Which of the following species has the largest and the smallest size :  $\text{Mg}^{2+}$  ,  $\text{Al}$  ,  $\text{Al}^{3+}$ ?
- Arrange the given ions in order of decreasing radii ;  $\text{Li}^{2+}$ ,  $\text{Be}^{2+}$  ,  $\text{B}^{3+}$  giving the reason.

4. Why is the second ionisation enthalpy always higher than the first ionisation enthalpy?
5. Why is the first ionisation enthalpy of 7N exceptionally higher?
6. Give the order of the first ionisation enthalpies of Na, Mg, Al and Si. Explain your choice.
7. Noble gases have larger size than halogens. Explain.
8. Write the IUPAC name and symbol for the element having 119 as the mass number. On the basis of the periodic table, predict the electronic configuration of this element and also the formula of its most stable chloride and oxide.
9. The formation of  $F^-$  (g) from  $F(g)$  is exothermic whereas that of  $O^{2-}$  is endothermic. Explain.
10. First and second ionisation enthalpies (IE1 and IE2) in  $\text{kJ mol}^{-1}$  for a few elements are given below :

Element.	IE1.	IE2
A	419	3051
B	1251.	2297
C	2372.	5250
D	738	1451

Which of the above elements is likely to be

- (a) a reactive metal
- (b) a reactive non-metal
- (c) a noble gas
- (d) a metal that forms a stable oxide of the formula  $MO$ ?

### MATHEMATICS

**SOLVE THE FOLLOWING QUESTIONS IN A SEPARATE NOTE-BOOK.**

1. If  $f(x) = x + 1/x$ , prove that  $\{f(x)\}^3 = f(x^3) + 3f(1/x)$ .
2. Find the domain of the function :  $f(x) = 4 - x + 1/x^2 - 1$
3. Find the domain and range of the function :  $f(x) = 12 - \sin 3x$



4. Find the domain of each of the following functions given by  
 (i)  $f(x) = 1x - x$  (ii)  $f(x) = 1x + x$  (iii)  $f(x) = 1x - x$   
 (iv)  $f(x) = 1x + x$
5. The perimeter of a certain sector of a circle is equal to the length of the arc of a semi-circle having the same radius. Express the angle of the sector in degrees, minutes and seconds.
6. Find in degree and radians the angle between the hour hand and the minute hand of a clock at half past three.
7. Prove that :  $\cos 510^\circ \cos 330^\circ + \sin 390^\circ \cos 120^\circ = -1$
8. Prove that  $\tan 5\pi/12 + \cot 5\pi/12 = 4$
9. If  $\alpha$  and  $\beta$  are acute angles such that  $\tan \alpha = m+1$  and  $\tan \beta = 12m+1$ , prove that  $\alpha + \beta = \pi/4$
10. Prove that :  $\cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = 1/16$

### ART INTEGRATION WITH MATHS

- 11. CHART MAKING : MAKE 1 BEAUTIFUL AND CREATIVE CHART OF FOLLOWING TOPICS ( HINT : USE MATERIALS LIKE COLOURED THREADS, BANGLES, PULSES ETC)**
- (I) VENN DIAGRAMS ( GANDHI HOUSE STUDENTS)  
 (II) ARROW DIAGRAMS FOR DIFFERENT RELATIONS( SUBHASH HOUSE STUDENTS)  
 (III) GRAPHS OF SIN X, COSX, TANX( TAGORE HOUSE STUDENTS)  
 (IV) GRAPHS OF COSEC X, SECX, COTX ( VIVEKANAND HOUSE STUDENTS)
- 12. MAKE FOLDABLES FOR DIFFERENT MATHEMATICAL CONCEPTS AND FORMULAS.( FOR EACH STUDENT)**
- 13. MAKE MATHEMATICAL RANGOLI USING DIFFERENT GEOMETRICAL SHAPES.( FOR EACH STUDENTS)**
- 14. PREPARE ONE MATHEMATICS GAME OR PUZZLES USING ANY MATHEMATICAL CONCEPTS.( USE THERMACOAL SHEET OR CARDBOARD SHEET)**

### BIOLOGY

- 1 Make any two charts on following topics
- Human Evolution
  - Scopes of biology in future
  - Indian biologist and their discoveries in biology
  - Genetic disorders like Schizophrenia, Huntington syndrome, Depression etc
- 2 Learn chapter 1 to 5 and read properly and do questions other than NCERT ( HOTS) in a separate notebook along with concept maps of each chapter on A3 size sheets.
- 3 Prepare one working model on following topics .
- Water treatment plant
- Wildlife sanctuary

4 Prepare herbal soap or herbal ointment or herbal kajal and lipstick

### **PHYSICAL EDUCATION**

1. Labelled diagram of 400 metre track and explain 100 metre, 200 metre, 400 metre, 800 metre, and 1500 metre races and show in 400 metre track.

2. Field Events

Shot put

discus throw

javelin throw

long jump

High jump

3. Any one game of your choice out of the list above. Labelled diagram of field and equipment (rules, terminologies and skills) etc.

Badminton

Boxing

Lawn Tennis

Judo

Taekwondo

Archery

4. Pictorial presentation of any five asanas.

### **IP**

**1. Answer the following questions:-**

- i. What is python.
- ii. What does IDLE stand for? What is Python IDLE?
- iii. Python is cross platform language .How?
- iv. Explain any two features of python.
- v. Is python case sensitive.Explain.
- vi. What are tokens & Keywords?
- vii. What are identifiers and literals?
- viii. What is a variable?What are the naming conventions of identifiers/variables/literals.
- ix. What is the default separator and terminator in print() function in Python? How can we change it?
- x. What are the comments? Declare a single line comment and a multi-line comment.

## 2. Differentiate between

- i. Interactive mode and Script mode
- ii. Compiler and Interpreter
- iii. Keyword and variable
- iv. / and //
- v. = and ==

## 3. Identify valid and invalid variable names from the following:

percentage%, 12class, final-exam, Class, For, \_subjects

## 4. Identify which of the following expressions are correct:

- i. x,y,z=12.5, 170, 'Samarth'
- ii. x,y,z=12.5, 170, 'Samarth', k
- iii. x=y=z=100
- iv. x,y = 10,10, z = 10
- v. x,y = 10

## 5. Give the data type of the following variables:

I x= 'Raghav'    ii y= 100.56    iii z=10    iv. t=15 +6j    v. num=true

## 7. Observe the following script and enlist all the tokens used in it.

```
#Identify tokens in the script
name="Fatima"
cl=eval(input("Enter class: "))
print (name,"studies in", cl,"class")
```

## 8. What will be the output of the following code?

```
x , y=2,6
x, y=y, x+2
print (x, y)
```

## 9. What will be the output produced by the following code?

```
name = 'Neeru'
age =21
print (name, "you are", 21, "now")
```

## 10. Write Python command to display a message on the screen – “First python Exam”

**11. What is the difference between interactive mode and script mode in Python?**

**12. Find out the errors and write the correct code:-**

a) z,p=6

b) temp=90

print (Temp)

**13. What is the output of the following code: print 9//2**

a) 4.5

b) 4.0

c) 4

d) error

**14. Identify the type of constants from the following:**

(i) "Hello" (ii) 24 (iii) True (iv) 40.89

**15. Write a program to find large number between 2 numbers in python.**

**16. Write a program to print first 10 even numbers.**

**17. Write a program to accept day number of the week and print day name. I.e**

**Enter day number : 3**

**Day is Tuesday**

**Project work :**

**XI-B Make a Chart/Model on Augmented Reality\Virtual Reality**

**XI-C Make a Chart/Model on Big Data & 5 V**

**XI-E Make a ppt/Chart on System software(all types)**

**XI-F(1-20) Make a Chart/Model on Cloud computing**

**XI-F (21-45) Make a Chart/Model on Application Software**

**Note: Students who are interested in making animated videos are not required to make charts/ppt/model. The video limit should be 2 minutes.**



## MUSIC

नोट - यह अवकाश गृह कार्य संगीत की प्रोजेक्ट फाइल पर ही करें ।

१. भारतीय संगीत के किन्हीं पांच वाद्यों का सचित्र वर्णन कीजिए।
२. राष्ट्रीय गीत किसके द्वारा लिखा गया इसको पूरा कीजिए ।
३. तानपुरे का सचित्र वर्णन कीजिए और २/३ का चित्र बनाइए।
४. अब तक भारतीय संगीत में भारत रत्न, पद्म श्री और पद्म विभूषण किस किसको मिला किन्हीं कलाकारों के विषय में संक्षिप्त जानकारी दीजिए।
५. संगीत की देवी वीणा वादिनी की वंदना लिखें हे हंस वाहिनी ।
६. सरस्वती माता का एक सुंदर चित्र बनाएं।
७. राष्ट्रीय गीत राष्ट्रीय गान के रचयिता कौन कौन हैं राष्ट्रगीत और राष्ट्रगान को स्पष्ट कीजिए ।
८. किन्हीं राज्यों के लोक नृत्य का सचित्र वर्णन कीजिए ।
९. राष्ट्रीय वाद्य कौन सा है और अंतरराष्ट्रीय वाद्य कौन सा है सचित्र वर्णन कीजिए।
१०. संगीत में आपको कौन सा वाद्य अच्छा लगता है उसका चित्र बनाकर स्पष्ट करें ।
११. हमारे देवी देवता कौन-कौन से हैं जिनके हाथों में संगीत का वाद्य यंत्र है उनका चित्र संलग्न करें ।
१२. भारतीय संगीत में प्रसन्नता का वाद्य और दुख का वाद्य कौन सा है सचित्र वर्णन करें और उसके विषय में दो-दो लाइन लिखें ।
१३. घन वाद्य, तंत्र विद्या, सुशीर वाद्य कौन-कौन से हैं इनके विषय में लिखें ।
१४. कोई एक एक भजन, देशभक्ति गीत और लोकगीत लिखें ।
१५. संगीत क्षेत्र में किन्हीं पांच ख्याति प्राप्त कलाकारों के विषय में लिखें।

