<u>**Subject: English**</u>

M.M: 25

Q1.   Read the following passage carefully.

1.   Every profession or trade, every art and every science has its technical vocabulary, the function of which is partly to designate things or processes which have no names in ordinary English partly to secure greater exactness in nomenclature. Such special dialects or jargons are necessary in technical discussions of any kind. Being universally understood by the devotees of the particular science or art, they have the precision of the mathematical formula. Besides, they save time, for it is much more economical to name a process than to describe it. Thousands of these technical terms are properly included in very large dictionary, yet, as a whole, they are rather on the outskirts of the English language than actually within its borders.

2.   Different occupations, however, differ widely in the character of their special vocabularies. In trades and handicrafts and other vocations like farming and fishing that have occupied great numbers of men from remote times, the technical vocabulary is very old. An average man now uses these in his own vocabulary. The special dialects of law, medicine, divinity and philosophy have become familiar to cultivated persons.

Based on the understanding of the passage, answer the questions given below.   (1x5=5)

i)What is the passage about?

ii) What is the role of technical vocabulary?

iii) State 2 advantages of using it.

iv) The writer of the passage is probably a…………………

v) Who does the phrase 'cultivated persons' refer to?

Q2.   The literary club of your school is putting up the play 'Waiting for Godot'. As secretary of the club, draft an invitation inviting the Senior journalist, Pranoy Roy to be the guest of honour at the function. Write the invitation in not more than 50 words. You are Sujit/ Ajita.   (3)

Q3. Girls in many parts of India are still discouraged from going to school. Consequently, a sizable section of the population is deprived of education. Schemes like Sarva Shiksha Abhiyan, CBSE scholarship to the single girl child and the Government's policy of giving free education to girls have come as a boon to our society. Write an article in 150-200 words on the education of the girl child in the country. (5)

Q4. Read the given extracts and answer the questions that follow. (1x6=6)

I. 'Driving from my parent's

home to Cochin last Friday

morning, I saw my mother,

beside me,

doze, open-mouthed, her face

ashen like that

of a corpse….'

(a) What did the narrator notice about her mother?

(b) Why did her mother's face look like that of a corpse?

(c) Name the literary device used in the line 'her face ashen like of a corpse.

II. I started for school very late that morning and was in great dread of scolding, especially because M. Hamel had said that he would question us on participles, and I did not know the first word about them. For a moment I thought of running away and spending the day out of doors. It was so warm, so bright! The birds were chirping at the edge of the woods; and in the open field back of the sawmill the Prussian soldiers were drilling. It was all much more tempting than the rule for participles, but I had the strength to resist, and hurried off to school.

(a) Why was the speaker dread going to school?

(b) What temptations did the speaker have?

(c) Explain 'I had the strength to resist'.

Q5. Answer the questions briefly: (2x3=6)

(a) What usual noises could be heard in the street when the school began? How was the scene in the school in the morning of the last lesson different from that on other days?

(b) What is Saheb looking for in the garbage dumps?

(c) Why does the writer feel that it is not tradition but poverty that children do not wear shoes?

No. of Questions: 10   **M.M:25**

<u>**Objectives:**</u>

- Revision of concepts
- Application of the concepts to real life situations.
- Skills to carry out research work and develop scientific aptitude.

<u>**Instructions:**</u>

- Neatly write all the answers in your notebook.
- Attempt the questions keeping in mind the weightage of each question

Q1. A charge q is placed at the point of intersection of body diagonals of a cube. The electric flux passing through any one of its face is   (1)
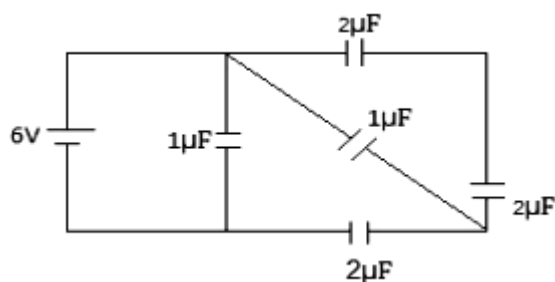
(a) $\frac{q}{6\epsilon_0}$ (b) $\frac{3q}{\epsilon_0}$ (c) $\frac{6q}{\epsilon_0}$ (d) $\frac{q}{3\epsilon_0}$

Q2. The electric potential of earth is taken to be zero because earth is a good   (1)

(a) insulator   (b) conductor   (c) semiconductor   (d) dielectric

Q3. How many electrons must be added to one plate and removed from the other so as to store 25.0J of energy in a 5.0μF parallel plate capacitor?   (2)

**Q4**. Find total energy stored in capacitors given in circuit.   (2)

Q5. Using Gauss's law, derive expression for intensity of electric field at any point near the infinitely long straight uniformly charged wire.   (2)

Q6. List two properties of equipotential surface .Depict the equipotential surfaces due to

(i) an electric dipole   (ii) two identical negative charges separated by a small distance.   (1+2=3)

Q7. Define electrostatic potential at a point. Write its SI unit.

Three charges q_1, q_2 and q_3 are kept respectively at point A, B, and C as shown in figure. Write the expression for electrostatic potential energy of the system.   (3)
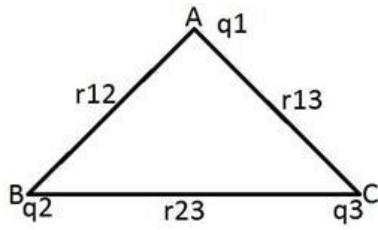
Q8. The electric field components in the following figure are $E_x = \alpha x$, $E_y = 0$, $E_z = 0$: in which $\alpha = 400\,\text{N/Cm}$. Calculate (i) the electric flux through the cube, and (ii) the charge within the cube assume that $a = 0.1\,\text{m}$. (3)
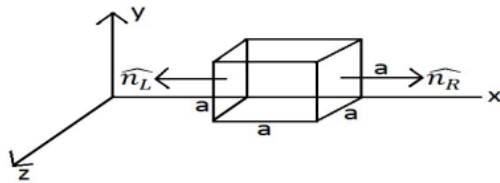
Q9.A parallel plate capacitor is charged by a battery. After sometime the battery is disconnected and a dielectric slab with its thickness equal to the plate separation is inserted between the plates. How will (*i*) the capacitance of the capacitor, (*ii*) potential difference between the plates and (*iii*) the energy stored in the capacitor be affected? Justify your answer in each case. (3)
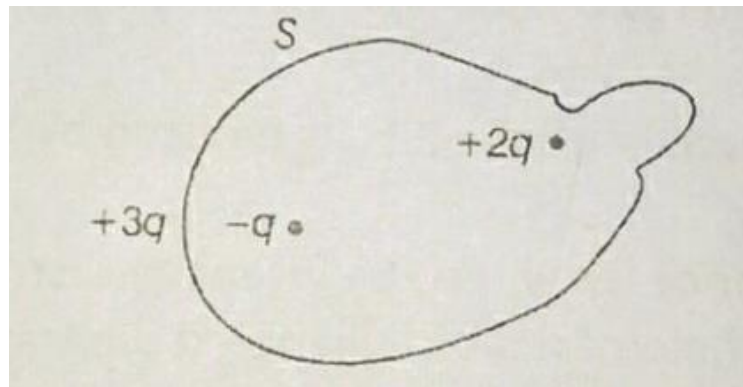
Q10.

(i) A point charge Q is placed at point O as shown in the figure. The potential difference $V_A - V_B$ is positive. Is the charge Q negative or positive? Justify. (1)

(ii) If the electric field is given by $6\hat{\imath} + 3\hat{\jmath} + 4\hat{k}$, Calculate the electric flux through a surface of area 20 units lying in $y - z$ plane. (2)

(iii) What is the electric flux due to this configuration through the surface S? (2)

Subject – Chemistry

Objective:

Ø Revision of concepts

Ø Application of the concepts to real life situations.

Ø Skills to carry out research work and develop scientific aptitude

Instructions:

 *Neatly write all the answers in your Chemistry notebook.

*Attempt the questions keeping in mind the weightage of each question.

Research Project : Investigatory Project in determining the air quality by Diffusion tubes, Lichen Study, Surface wipes, etc.

Q.1 **Name the following halides according to IUPAC system:** (2)

(a) $CH_3CH(Br)CH=C(CH_3)CH_2Cl$ (b) $CH_3CH(CH_3)CH(Br)CH_3$

(c) $ClCH_2C=CCH_2Br$ (d) $CH_3CH \equiv CI$

Q.2 What happens when bromine attacks $CH_2=CH-CH_2-C \equiv CH$? (2)

Q.3 Write the structures of the following organic compounds: (2)

(i) 2-Chloro-3-methylpentane

(ii) 1-Chloro-4-ethylcyclohexane

(iii) 2-(2-Chlorophenyl)-1-iodo octane

 (iv) 4-tert-Butyl-3-iodoheptane

Q.4 **Answer the following questions:** (2)

(i) What is meant by chirality of the compound? Give an example.

(ii) Which of the following compounds is more easily hydrolysed by KOH and why?

$CH_3CH(Cl)CH_2CH_3$ or $CH_3CH_2CH_2Cl$

Q.5 State one use of DDT and iodoform. Why chloroform is kept in dark coloured bottles (3)

completely filled?

Q.6 What are ambident nucleophiles? Explain with the help of an example. (2)

Q.7   **Write short notes on:**   (2)

    (a) Fittig reaction   (b) Swartz Reaction

Q.8   **Carry out the following conversions:**   (3)

    i) 1-Chlorobutane to n-octane

    ii) Toluene to benzyl alcohol

    iii) Benzyl chloride to benzyl alcohol

Q.9   **Identify the following compounds:**   (8)

    (i) $CH_3CH_2CH_2Cl + NaI$ ----Acetone,heat--- $\square$

    (ii) $(CH_3)_3CBr + KOH$ -----Ethanol, heat-- $\square$

    (iii) $CH_3CH(Br)CH_2CH_3 + NaOH$ (aq) ------ $\square$

    (iv) $CH_3CH_2Br + KCN$ -----ethanol----- $\square$

    (v) $(CH_3)_3CBr + H_2O$ ------heat--- $\square$

    (vi) $(CH_3)_2CHCH(Br)CH_2CH_3 + C_2H_5ONa$ ----heat-- $\square$

    (vii) $CH_3CH_2Cl + SbF_3$ -----heat---- $\square$

    (viii) $CH_3CH_2CH=CH_2 + HBr$ ----Benzoyl peroxide----- $\square$

Q.10   **Account for the following:**   (4)

i) tert-Butyl chloride reacts with aqueous NaOH by S_N1 mechanism while n-butyl chloride reacts by S_N2 mechanism.

ii) Among HI, HBr and HCl, HI is most reactive.

iii) Alkyl halides though polar, are immisible with water.

iv) Chlorobenzene is extremely less reactive towards nucleophillic substitution reaction.

Subject – Biology

Answer the following questions:

Q1. Why is reproduction important for organisms?   (1)

Q2. Sexual reproduction is better than asexual reproduction. Comment   (1)

Q3. What is the difference between juvenile and vegetative phase?   (1)

Q4. What happens when syngamy does not take place in the ovary?   (2)

Q5. Mention the events that place in embryogenesis.   (2)

Q6. Differentiate between oviparous and viviparous organism with the help of an example each. (3)

Q7. What is the fate of the zygote formed as a result of syngamy.   (3)

Q8. Differentiate between: (3)

- a) Monoecious and Dioecious

- b) Staminate and Pistillate

- c) Haploid and Diploid.

Q9. Develop a graphic organizer to show types of reproduction modes in organisms. Mention (4)
an example in each case.

10. Explain the three important events in sexual reproduction.   (5)

Research Project:

- A. Honey bees are the primary pollinating agents but are now endangered species. Various countries are creating innovative spaces and techniques to preserve the species. Research about the techniques followed

by various countries and agencies to promote apiculture.

- B. Prepare a project for final exam on any topic of your interest related to Std 12 biology syllabus.

Follow the outline below and include whichever options applicable.

(Typed manuscript, including pictures, should be within the range of 15 to 20 A4 sheets)

-Topic/Theme

-Contents

- Experiment/interview/questionnaire conducted

-Relevant pictures/graphical representations/data

-Bibliography

Subject – Mathematics
(INVERSE TRIGONOMETRIC FUNCTIONS)

Q1	Find the principal value of $\sin^{-1}\left(\dfrac{1}{2}\right)$ and $\sin^{-1}\left(\dfrac{-1}{\sqrt{2}}\right)$.
Q2	Find the principal values of $\cos^{-1}\dfrac{\sqrt{3}}{2}$ and $\cos^{-1}\left(-\dfrac{1}{2}\right)$.
Q3	Find the principal values of $\cot^{-1}\sqrt{3}$ and $\cot^{-1}(-1)$.
Q4	Evaluate each of the following : (i) $\sin^{-1}\left(\sin\dfrac{\pi}{3}\right)$ (ii) $\cos^{-1}\left(\cos\dfrac{2\pi}{3}\right)$ (iii) $\tan^{-1}\left(\tan\dfrac{\pi}{4}\right)$ (iv) $\sin^{-1}\left(\sin\dfrac{2\pi}{3}\right)$ (v) $\cos^{-1}\left(\cos\dfrac{7\pi}{6}\right)$ (vi) $\tan^{-1}\left(\tan\dfrac{3\pi}{4}\right)$
Q5	Prove that : $\sin^{-1}\dfrac{12}{13}+\cos^{-1}\dfrac{4}{5}+\tan^{-1}\dfrac{63}{16}=\pi$
Q6	Prove that $\sin^{-1}\dfrac{3}{5}-\sin^{-1}\dfrac{8}{17}=\cos^{-1}\dfrac{84}{85}$
Q7	Evaluate the following : (i) $\sin^{-1}(\sin 10)$ (ii) $\sin^{-1}(\sin 5)$ (iii) $\cos^{-1}(\cos 10)$ (iv) $\tan^{-1}\{\tan(-6)\}$

Q8	Simplify each of the following :
	
	     (i) $\sin^{-1}\left(\dfrac{\sin x+\cos x}{\sqrt{2}}\right),\ -\dfrac{\pi}{4}<x<\dfrac{\pi}{4}$
	
	     (ii) $\cos^{-1}\left(\dfrac{\sin x+\cos x}{\sqrt{2}}\right),\ \dfrac{\pi}{4}<x<\dfrac{5\pi}{4}$

Q9	Prove that : $\sec^2(\tan^{-1}2)+\csc^2(\cot^{-1}3)=15$

Q10	Prove that :
	
	     (i) $\sin[\cot^{-1}\{\cos(\tan^{-1}x)\}]=\sqrt{\dfrac{x^2+1}{x^2+2}}$
	
	        (ii) $\cos[\tan^{-1}\{\sin(\cot^{-1}x)\}]=\sqrt{\dfrac{x^2+1}{x^2+2}}$

Subject – Economics

Q1. Is the following a revenue receipt or a capital receipt in the context of government

   budget and why?   (2)

   (i) Tax receipts

   (ii) Disinvestment

Q2. Giving reason, state whether the following is a revenue expenditure or a capital

   expenditure in a government budget: (2)

   (i) Expenditure on scholarships

   (ii) Expenditure on building a bridge

Q3. State three sources each of revenue receipts and capital receipts in government

   budget.   (2)

Q4. Explain any one objective of government budget.   (2)

Q5. How can budgetary policy be used to reduce inequalities of income?   (3)

Q6. Distinguish between revenue expenditure and capital expenditure in a government

   budget. Give an example.   (3)

Q7. Distinguish between revenue receipts and capital receipts in a government budget. (3)

Q8. Explain the role of government in allocation of resources.   (3)

Q9. Classify the following receipts into revenue receipts and capital receipts. Give reasons

   in support of your answer.   (5)

   (i) Recovery of loans.

   (ii) Interest received on loans.

   (iii) Dividend received from public enterprises.

   (iv) Grants from foreign government.

Q10. Explain the objectives of resource allocation and income distribution in a government

   budget.   (5)

Subject – Computer Science

Q1 How many times will Python execute the code inside the following while loop? Justify your answers.
(1)

```
i = 0
 while i < 0 and i > 2 :
 print "Hello ..."
 i = i+1
```

Q2 How many times will Python execute the code inside the following while loop?   (1)

```
i = 1
 while i < 10000 and i > 0 and 1:
 print " Hello ..."
 i = 2 * i
```

Q3 Rewrite the following for loop into while loop: (2)

```
for a in range(25,500,25):
 print a
```

Q 4What is the difference between a tuple and a list?   (2)

Q5 What are keyword arguments? What are it's advantages ?   (2+2=4)

Q6 Out of the following, find those identifiers, which cannot be used for naming Variables or functions in a Python program: (2)
Total * Tax, While, Class, Switch, 3rd Row, finally, Column 31, Total.

Q 7 Why does the expression 2 + 3*4 result in the value 14 and not the value 24?   (2)

Q 8 Convert the following for loop into while loop, for i in range (1,100):   (2)

```
if i % 4 == 2 :
 print i, "mod", 4 , "= 2"
```

Q 9 What is the difference between parameters and arguments?   (2)

Q 10 Observe the following Python code carefully and obtain the output, which will appear on the screen
after execution.   (2)


```
def Findoutput ():
 L = "earn"
 X = " "
 count = 1
 for i in L:
 if i in ['a', 'e',' i', 'o', 'u']:
 x = x + 1. Swapcase ()
 else:
 if (count % 2 ! = 0):
 x = x + str (len (L[:count]))
 else:
 x = x + 1
 count = count + 1
 print x
 Findoutput ()
```


Q11 Write a program to find all the odd numbers up to a given number   (2)

Q12 Which of the statements will execute the last   (2)

```
def s(n1): #Statement 1
    print(n1) #Statement 2
n2=4 #Statement 3
s(n2) #Statement 4
```

a. Statement 1
b. Statement 2
c. Statement 3
d. Statement 4

Q13 Which of the following function definition header is wrong?   (2)
a. def sum(n1, n2, n = 3):

b. def scan(p1, p2 = 4, p3 = 5):

c. def div(p1=4, p2, p3):

d. def mul(p1, n1, m1):

Q14 A function may return multiple values using _____. Explain with an example.

(2)

a. List

b. Tuple

c. String

d. Dictionary

Q14 Write the output of the following and justify your answer by dry run.   (2)
```
def check():
  i = 5
  while i > 1:
     if i //2==0:
        x = i + 2
        i = i-1
     else:
        i = i-2
        x = i
  print (x)
check()
```
a.

3
3

b.

5
3

c.

3
1

d.

3
2

Subject – Informatics Practices

Q1. What do you mean by Pandas in Python? (2)

Q2. What do you mean by Series in Python? (2)

Q3. Name a method which is used to create Series in Python. Explain all the parameters

of the Series function. (2)

Q4. Write a program in Python to create a series of first five even numbers. (2)

Q5. Write a program in Python to create a Series in Python from the given dictionary.

D = {"Jan" : 31, "Feb" : 28, "Mar" : 31} (2)

Q6. Write the output of the following : (2)

import pandas as pd

S1 = pd.Series(range(1,15,3), index=[x for x in "super"])

print(S1)

Q7. Name any two attributes of Series in Python. (2)

Q8. Write the output of the following : (2)

import pandas as pd

L1 = list("My name is Ravi Kumar")

S1 = pd.Series(L1)

print(S1[0])

print(S1[5])

Q9. Complete the code to get the required output : (2)

import _____ as pd

_____ = pd.Series([31, 28, 31], index = ["Jan", "Feb", "Mar"])

print(S1["_____"])

OUTPUT :

28

Q10. Write a program to modify the value 5000 to 7000 in the following Series "S1" (2)

A   25000

B   12000

C   8000

D 5000

Q11 Write the output of the following code : (2 +2 =4)

```
import pandas as pd

S1 = pd.Series([2, 5, 7, 10])

print(S1 + 2)

print(S1 * 2)

print(S1 ** 2)

print(S1 - 2)

print(S1 > 2)
```

Q12. Write a program to display the following Series "S1" in descending order. (2)

```
0    300

1    100

2    1200

3    1700
```

Q13. Write a program to display multiple of 5 from the given Pandas Series. (2)

```
0    15

1    2

2    8

3    4

4    1

5    25

6    30
```

Q14. Differentiate between Pandas Series and NumPy Arrays. (2)

Subject – Psychology

Q1**.** A person having a _____ sets a standard for guiding her/his actions in life and for judging

others. (1)

Q2. _____ refers to an individual's underlying potential for acquiring skills. (1)

Q3. Aditya has to interview, a famous politician on a live T.V. show. Which is the most appropriate

type of interview he can use? (2)

Q4. Why is emotional intelligence receiving increasing attention of educators? (2)

Q5. Describe key feature of the case study method. (3)

Q6. Angad has been the topper in a class. He went to the topmost college, where he was

neither sensitive to his own self or to others. This led to problems in interpersonal

relationships with reference to his condition. Explain the importance of the emotional

intelligence in his life. (3)

Q7. Think of an international conflict. Suggest conflict resolution strategies for the same. (4)

Q8. Explain the competencies of Indian notion of intelligence. (4)

Q9. How is aptitude different from intelligence? Explain how the PASS model helps us in

understand intelligence. (5)

Q10. Explain the relationship between creativity and intelligence. (5)

SUBJECT – PHYSICAL EDUCATION

1. How many byes will be given if 19 teams are participating in a knock-out tournament? (1)
   (a) 12   (b) 13   (c) 14   (d) 15

2. How many methods can be used for preparing fixtures in a league tournament? (1)
   (a) 2   (b) 4   (c) 3   (d) 5

3. Tournaments are helpful for the development of: (1)
   (a) Social qualities (b) Selection of players (c) Sports skills (d) All the above

4. What do you mean by knock-out tournament? Draw the fixtures of 21 teams on knockout
   basis. (5)

5. What do you mean by knock-out tournament? Discuss the advantages and disadvantages of
   knock-out tournament. (5)

6. What do you mean by intramurals? Mention the significance of intramurals for school
   children. (5)

7. What is combination tournament? Explain knockout cum league and league cum knockout. (5)

8. Explain nutrients of balanced diet. (5)

9. What are vitamins. Explain their types. (5)

10. Explain micronutrients. (5)