Summer Assignment
12th Biology

General Instructions:

- **Follow the biology syllabus** thoroughly.
- **Follow all instructions sincerely.**

A. Biology Practical File Preparation

During your summer holidays, prepare a **Biology Practical File** as per the following guidelines:

File Preparation Guidelines:

1. **All experiments** must be written in the **given sequence**.
2. Start **each new experiment on a new page**.
3. Use the:
    - **Unruled page** for:
        - Diagrams
        - Observation tables
        - Calculations
    - **Ruled page** for the remaining content (aim, materials, procedure, etc.).
4. The file should be **neat, clean**, and **properly covered**.
5. **Date of experiment** and **date of submission** will be filled in **during regular classes**.
6. **Spotting exercises** will be done after reading in a **planned and systematic manner**.

B. Investigatory Project

In addition to the practical file, prepare an **Investigatory Project** based on any topic from your syllabus.

Instructions:

1. **Get the topic approved** by your mentor **before starting** the project.
2. A **list of suggested topics** will be shared separately.

C. PowerPoint Presentation

Prepare a **10-minute PPT presentation** based on your investigatory project.

- Ensure your topic is **different** from others to **avoid duplication** or **clashes**.

Inverse Trigonometric Functions

SUBJECTIVE TYPE QUESTION

1. Find the principal value of $\cos^{-1}x$, for $x = \frac{\sqrt{3}}{2}$.

2. Evaluate $\tan^{-1}\left(\sin\left(\frac{-\pi}{2}\right)\right)$.

3. Find the value of $\cos^{-1}\left(\cos\frac{13\pi}{6}\right)$.

4. Find the value of $\tan^{-1}\left(\tan\frac{9\pi}{8}\right)$

5. Evaluate $\tan(\tan^{-1}(-4))$.

6. Evaluate: $\tan^{-1}\sqrt{3} - \sec^{-1}(-2)$.

7. Evaluate: $\sin^{-1}\left[\cos\left(\sin^{-1}\frac{\sqrt{3}}{2}\right)\right]$

8. Prove that $\tan(\cot^{-1}x) = \cot(\tan^{-1}x)$. State with reason whether the equality is valid for all values of x.

9. Find the value of $\sec\left[\tan^{-1}\frac{y}{2}\right]$

10. Find value of $\tan(\cos^{-1}x)$ and hence evaluate $\tan\left(\cos^{-1}\frac{8}{17}\right)$.

11. Find the value of $\sin\left[2\cot^{-1}\left(\frac{-5}{12}\right)\right]$

12. Evaluate $\cos\left[\sin^{-1}\frac{1}{4} + \sec^{-1}\frac{4}{3}\right]$

13. Prove that $2\sin^{-1}\frac{3}{5} - \tan^{-1}\frac{17}{31} = \frac{\pi}{4}$

14. Prove that $\cot^{-1}7 + \cot^{-1}8 + \cot^{-1}18 = \cot^{-1}3$.

15. Which is greater than $\tan 1$ or $\tan^{-1}1$?

16. Find the value of

$$\sin\left(2\tan^{-1}\frac{2}{3}\right) + \cos\left(\tan^{-1}\sqrt{3}\right)$$

17. Solve for x : $\tan^{-1}\left(\frac{1-x}{1+x}\right) = \frac{1}{2}\tan^{-1}x$, $x > 0$

18. Find the value of x which satisfy the equation $\sin^{-1}x + \sin^{-1}(1-x) = \cos^{-1}x$.

19. Solve the equation

$$\sin^{-1}6x + \sin^{-1}6\sqrt{3}x = -\frac{\pi}{2}$$

20. Show that

$$2\tan^{-1}\left\{\tan\frac{\alpha}{2}\cdot\tan\left(\frac{\pi}{4}-\frac{\beta}{2}\right)\right\} = \tan^{-1}\frac{\sin\alpha\cos\beta}{\cos\alpha+\sin\beta}.$$

21. Find value of $\tan^{-1}\left(\tan\frac{5\pi}{6}\right) + \cos^{-1}\left(\frac{13\pi}{6}\right)$

22. Evaluate $\cos\left[\cos^{-1}\left(\frac{-\sqrt{3}}{2}\right) + \frac{\pi}{6}\right]$

23. Prove that $\cot\left(\frac{\pi}{4} - 2\cot^{-1}3\right) = 7$

24. Find the value of

$$\tan^{-1}\left(-\frac{1}{\sqrt{3}}\right) + \cot^{-1}\left(\frac{1}{\sqrt{3}}\right) + \tan^{-1}\left(\sin\left(\frac{-\pi}{2}\right)\right)$$

25. Find the value of $\tan^{-1}\left(\tan\frac{2\pi}{3}\right)$

26. Show that $2\tan^{-1}(-3) = \frac{-\pi}{2} + \tan^{-1}\left(\frac{-4}{3}\right)$

27. Find the real solution of the equation

$$\tan^{-1}\sqrt{x(x+1)} + \sin^{-1}\sqrt{x^2+x+1} = \frac{\pi}{2}.$$

28. Find the value of expression

$$\sin\left(2\tan^{-1}\frac{1}{3}\right) + \cos\left(\tan^{-1}2\sqrt{2}\right).$$

29. If $2\tan^{-1}(\cos\theta) = \tan^{-1}(2\operatorname{cosec}\theta)$, then show that $\theta = \frac{\pi}{4}$, where n is any integer.

30. Show that $\left(2\tan^{-1}\frac{1}{7}\right) = \sin\left(4\tan^{-1}\frac{1}{3}\right)$

31. Solve that the following equation $\cos(\tan^{-1}x) = \sin\left(\cot^{-1}\frac{3}{4}\right)$.

32. Prove that

$$\tan^{-1}\left(\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right)=\frac{\pi}{4}+\frac{1}{2}\cos^{-1}x^2.$$

33. Find the simplified form

$$\cos^{-1}\left(\frac{3}{5}\cos x+\frac{4}{5}\sin x\right),$$

where $x \in \left[\frac{-3\pi}{4},\frac{\pi}{4}\right]$.

34. Prove taht $\sin^{-1}\frac{8}{17}+\sin^{-1}\frac{3}{5}=\sin^{-1}\frac{77}{85}$.

35. Show that $\sin^{-1}\frac{5}{13}+\cos^{-1}\frac{3}{5}=\tan^{-1}\frac{63}{16}$.

36. Prove that $\tan^{-1}\frac{1}{4}+\tan^{-1}\frac{2}{9}=\sin^{-1}\frac{1}{\sqrt{5}}$

37. Find the value of $4\tan^{-1}\frac{1}{5}-\tan^{-1}\frac{1}{239}$.

38. Show that $\tan\left(\frac{1}{2}\sin^{-1}\frac{3}{4}\right)=\frac{4-\sqrt{7}}{3}$ and justify why the other value $\frac{4+\sqrt{7}}{3}$ is ignored?

39. If $a_1, a_2, a_3, \ldots, a_n$ is an arithmetic progression with common difference d, then evaluate the following expression.

$$\tan\left[\tan^{-1}\left(\frac{d}{1+a_1a_2}\right)+\tan^{-1}\left(\frac{d}{1+a_2a_3}\right)+\tan^{-1}\left(\frac{d}{1+a_3a_4}\right)+\ldots+\tan^{-1}\left(\frac{d}{1+a_{n-1}a_n}\right)\right]$$

OBJECTIVE TYPE QUESTION

Choose the correct answer from the given four options in each of following questions:

1. Which of the following corresponds to the principal value branch to $\tan^{-1}$?

(a) $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$ (b) $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]$

(c) $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)-\{0\}$ (d) $(0, \pi)$

2. The principal value of branch of $\sec^{-1}$ is

(a) $\left[-\frac{\pi}{2},\frac{\pi}{2}\right]-\{0\}$ (b) $[0,\pi]-\left\{\frac{\pi}{2}\right\}$

(c) $(0, \pi)$ (d) $\left(-\frac{\pi}{2},\frac{\pi}{2}\right)$

3. One branch of $\cos^{-1}$ other than the principal value branch corresponds to

(a) $\left[\frac{\pi}{2},\frac{3\pi}{2}\right]$ (b) $[\pi,2\pi]-\left\{\frac{3\pi}{2}\right\}$

(c) $(0, \pi)$ (d) $[2\pi, 3\pi]$

4. The value of $\tan^{-1}\left(\cos\left(\frac{43\pi}{5}\right)\right)$ is

(a) $\frac{3\pi}{5}$ (b) $\frac{-7\pi}{5}$

(c) $\frac{\pi}{10}$ (d) $-\frac{\pi}{10}$

5. The principal value of the expression $\cos^{-1}[\cos(-680^\circ)]$ is

(a) $\frac{2\pi}{9}$ (b) $\frac{-2\pi}{9}$

(c) $\frac{34\pi}{9}$ (d) $\frac{\pi}{9}$

6. The value of $\cot(\sin^{-1}x)$ is

(a) $\frac{\sqrt{1+x^2}}{x}$ (b) $\frac{x}{\sqrt{1+x^2}}$

(c) $\frac{1}{x}$ (d) $\frac{\sqrt{1-x^2}}{x}$

7. If $\tan^{-1}x=\frac{\pi}{10}$ for some $x \in \mathbf{R}$, then the value of $\cot^{-1}x$ is

(a) $\frac{\pi}{5}$ (b) $\frac{2\pi}{5}$

(c) $\frac{3\pi}{5}$ (d) $\frac{4\pi}{5}$

8. The domain of $\sin^{-1}2x$ is

(a) [0, 1] (b) [–1, 1]

(c) $\left[-\frac{1}{2},\frac{1}{2}\right]$ (d) [–2, 2]

9. The principal value of $\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$ is

(a) $-\frac{2\pi}{3}$ (b) $-\frac{\pi}{3}$

(c) $\frac{4\pi}{3}$ (d) $\frac{5\pi}{3}$

10. The greatest and least value of $(\sin^{-1} x)^2 + (\cos^{-1} x)^2$ are respectively

(a) $\frac{5\pi^2}{4}$ and $\frac{\pi^2}{8}$ (b) $\frac{\pi}{2}$ and $\frac{-\pi}{2}$

(c) $\frac{\pi^2}{4}$ and $\frac{-\pi^2}{4}$ (d) $\frac{\pi^2}{4}$ and 0

11. Let $\theta = \sin^{-1}(\sin(-600^\circ))$, then value of θ is

(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{2}$

(c) $\frac{2\pi}{3}$ (d) $\frac{-2\pi}{3}$

12. The domain of the function $y = \sin^{-1}(-x^2)$ is

(a) [0, 1] (b) (0, 1)

(c) [–1, 1] (d) ϕ

13. The domain of $y = \cos^{-1}(x^2 - 4)$ is

(a) [3, 5]

(b) $[0, \pi]$

(c) $\left[-\sqrt{5},-\sqrt{3}\right]\cap\left[-\sqrt{5},\sqrt{3}\right]$

(d) $\left[-\sqrt{5},-\sqrt{3}\right]\cap\left[-\sqrt{3},\sqrt{5}\right]$

14. The domain of the function defined by $f(x) = \sin^{-1} x + \cos x$ is

(a) [–1, 1] (b) $[-1, \pi + 1]$

(c) $(-\infty, \infty)$ ($) ϕ

15. The value of $\sin(2\sin^{-1}(.6))$ is

(a) .48 (b) .96

(c) 1.2 (d) sin 1.2

16. If $\sin^{-1} x + \sin^{-1} y = \frac{\pi}{2}$, then value of $\cos^{-1} x + \cos^{-1} y$ is

(a) $\frac{\pi}{2}$ (b) π

(c) 0 (d) $\frac{2\pi}{3}$

17. The value of $\tan\left(\cos^{-1}\frac{3}{5} + \tan^{-1}\frac{1}{4}\right)$ is

(a) $\frac{19}{8}$ (b) $\frac{8}{19}$

(c) $\frac{19}{12}$ (d) $\frac{3}{4}$

18. The value of the expression $\sin[\cot^{-1}(\cos(\tan^{-1} 1))]$ is

(a) 0 (b) 1

(c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{\frac{2}{3}}$

19. The equation $\tan^{-1}x - \cot^{-1} x = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ has

(a) no solution

(b) unique solution

(c) infinite number of solutions

(d) two solutions

20. If $\alpha \le 2\sin^{-1} x + \cos^{-1} x \le \beta$, then

(a) $\alpha = \frac{-\pi}{2}, \beta = \frac{\pi}{2}$ (b) $\alpha = 0, \beta = \pi$

(c) $\alpha = \frac{-\pi}{2}, \beta = \frac{3\pi}{2}$ (d) $\alpha = 0, \beta = 2\pi$

21. The value of $\tan^2(\sec^{-1} 2) + \cot^2(\operatorname{cosec}^{-1} 3)$ is

(a) 5 (b) 11

(c) 13 (d) 15

FILL IN THE BLANKS

Fill in the blanks in each of the following questions:

1. The principal value of $\cos^{-1}\left(-\frac{1}{2}\right)$ is _____ .

2. The value of $\sin^{-1}\left(\sin\frac{3\pi}{5}\right)$ is _____ .

3. If $\cos(\tan^{-1} x + \cot^{-1}\sqrt{3}) = 0$, then value of x is _____ .

4. The set of value of $\sec^{-1}\left(\frac{1}{2}\right)$ is _____ .

9. The principal value of $\sin^{-1}\left(\frac{-\sqrt{3}}{2}\right)$ is

(a) $-\frac{2\pi}{3}$ (b) $-\frac{\pi}{3}$

(c) $\frac{4\pi}{3}$ (d) $\frac{5\pi}{3}$

10. The greatest and least value of $(\sin^{-1} x)^2 + (\cos^{-1} x)^2$ are respectively

(a) $\frac{5\pi^2}{4}$ and $\frac{\pi^2}{8}$ (b) $\frac{\pi}{2}$ and $\frac{-\pi}{2}$

(c) $\frac{\pi^2}{4}$ and $\frac{-\pi^2}{4}$ (d) $\frac{\pi^2}{4}$ and 0

11. Let $\theta = \sin^{-1}(\sin(-600^\circ))$, then value of θ is

(a) $\frac{\pi}{3}$ (b) $\frac{\pi}{2}$

(c) $\frac{2\pi}{3}$ (d) $\frac{-2\pi}{3}$

12. The domain of the function $y = \sin^{-1}(-x^2)$ is

(a) [0, 1] (b) (0, 1)

(c) [–1, 1] (d) ϕ

13. The domain of $y = \cos^{-1}(x^2 - 4)$ is

(a) [3, 5]

(b) $[0, \pi]$

(c) $\left[-\sqrt{5},-\sqrt{3}\right]\cap\left[-\sqrt{5},\sqrt{3}\right]$

(d) $\left[-\sqrt{5},-\sqrt{3}\right]\cap\left[-\sqrt{3},\sqrt{5}\right]$

14. The domain of the function defined by $f(x) = \sin^{-1} x + \cos x$ is

(a) [–1, 1] (b) $[-1, \pi + 1]$

(c) $(-\infty, \infty)$ ($) ϕ

15. The value of $\sin(2\sin^{-1}(.6))$ is

(a) .48 (b) .96

(c) 1.2 (d) sin 1.2

16. If $\sin^{-1} x + \sin^{-1} y = \frac{\pi}{2}$, then value of $\cos^{-1} x + \cos^{-1} y$ is

(a) $\frac{\pi}{2}$ (b) π

(c) 0 (d) $\frac{2\pi}{3}$

17. The value of $\tan\left(\cos^{-1}\frac{3}{5} + \tan^{-1}\frac{1}{4}\right)$ is

(a) $\frac{19}{8}$ (b) $\frac{8}{19}$

(c) $\frac{19}{12}$ (d) $\frac{3}{4}$

18. The value of the expression $\sin[\cot^{-1}(\cos(\tan^{-1} 1))]$ is

(a) 0 (b) 1

(c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{\frac{2}{3}}$

19. The equation $\tan^{-1}x - \cot^{-1} x = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ has

(a) no solution

(b) unique solution

(c) infinite number of solutions

(d) two solutions

20. If $\alpha \le 2\sin^{-1} x + \cos^{-1} x \le \beta$, then

(a) $\alpha = \frac{-\pi}{2}, \beta = \frac{\pi}{2}$ (b) $\alpha = 0, \beta = \pi$

(c) $\alpha = \frac{-\pi}{2}, \beta = \frac{3\pi}{2}$ (d) $\alpha = 0, \beta = 2\pi$

21. The value of $\tan^2(\sec^{-1} 2) + \cot^2(\operatorname{cosec}^{-1} 3)$ is

(a) 5 (b) 11

(c) 13 (d) 15

FILL IN THE BLANKS

Fill in the blanks in each of the following questions:

1. The principal value of $\cos^{-1}\left(-\frac{1}{2}\right)$ is _____ .

2. The value of $\sin^{-1}\left(\sin\frac{3\pi}{5}\right)$ is _____ .

3. If $\cos(\tan^{-1} x + \cot^{-1}\sqrt{3}) = 0$, then value of x is _____ .

4. The set of value of $\sec^{-1}\left(\frac{1}{2}\right)$ is _____ .

5. The principal value of $\tan^{-1}\sqrt{3}$ is _____ .

6. The value of $\cos^{-1}\left(\cos\frac{14\pi}{3}\right)$ is _____ .

7. The value of $\cos(\sin^{-1} x + \cos^{-1} x)$, $|x| \le 1$ is _____ .

8. The value of expression $\tan\left(\frac{\sin^{-1} x + \cos^{-1} x}{2}\right)$, when $x = \frac{\sqrt{3}}{2}$ is _____ .

9. If $y = 2\tan^{-1} x + \sin^{-1}\left(\frac{2x}{1+x^2}\right)$ for all x, then _____ $< y <$ _____.

10. The result $\tan^{-1} x - \tan^{-1} y = \tan^{-1}\left(\frac{x-y}{1+xy}\right)$ is true when value of xy is _____ .

11. The value of $\cot^{-1}(-x)$ for all $x \in \mathbf{R}$ in terms of $\cot^{-1} x$ is _____ .

TRUE/FALSE

State True or False for the statements in each of the following questions:

1. All trigonometric functions have inverse over their respective domains.

2. The value of expression $(\cos^{-1} x)^2$ is equal to $\sec^2 x$.

3. The domain of trigonometric functions can be restricted to any one of their branch (not necessarily principal value) in order to obtain their inverse functions.

4. The least numerical value, either positive or negative of angle θ is called principal value of the inverse trigonometric function.

5. The graph of inverse trigonometric function can be obtained from the graph of their corresponding trigonometric function by interchanging x and y axes.

6. The minimum value of n for which $\tan^{-1}\frac{n}{\pi} > \frac{\pi}{4}$, $n \in \mathbf{N}$, is value is 5.

7. The principal value of $\sin^{-1}\left[\cos\left(\sin^{-1}\frac{1}{2}\right)\right]$ is $\frac{\pi}{3}$

ANSWER

SUBJECTIVE TYPE QUESTION

1. $\pi/6$ **2.** $-\pi/4$ **3.** $\pi/6$
4. $\pi/8$ **5.** -4 **6.** $-\pi/3$
7. $\pi/6$ **9.** $\frac{\sqrt{4+y^2}}{2}$
10. $\frac{\sqrt{1-x^2}}{x}$; $\frac{15}{8}$ **11.** $\frac{-120}{169}$
12. $\frac{3\sqrt{15}-\sqrt{7}}{16}$ **15.** $\tan 1 > 1 > \tan^{-1}(1)$
16. 37/26 **17.** $1/\sqrt{3}$
18. $x = 0$ or $x = 1/2$ **19.** $x = \pm 1/12$
21. 0 **22.** -1 **24.** $-\pi/12$
25. $-\pi/3$ **27.** 0, -1 **28.** 14/15
31. $\frac{-3}{4}, \frac{3}{4}$ **33.** $\tan^{-1}\frac{4}{3} - x$ **37.** $\frac{\pi}{4}$
39. $\frac{a_n - a_1}{1 + a_1 a_n}$

OBJECTIVE TYPE QUESTION

1. (a)	**2.** (b)	**3.** (d)	**4.** (d)	**5.** (a)
6. (d)	**7.** (b)	**8.** (c)	**9.** (b)	**10.** (a)
11. (a)	**12.** (c)	**13.** (d)	**14.** (a)	**15.** (b)
16. (a)	**17.** (a)	**18.** (d)	**19.** (b)	**20.** (b)
21. (b)				

FILL IN THE BLANKS

1. $\frac{2\pi}{3}$ **2.** $\frac{2\pi}{5}$ **3.** $\sqrt{3}$
4. ϕ **5.** $\frac{\pi}{3}$ **6.** $\frac{2\pi}{3}$
7. 0 **8.** 1 **9.** -2π, 2π
10. $xy > -1$ **11.** $\pi - \cot^{-1} x$

TRUE/FALSE

1. False	**2.** False	**3.** True
4. True	**5.** True	**6.** False
7. True		

❑❑

Math Lab activity to be completed

1. To draw the graph of $\sin^{-1} x$, using the graph of sin x and demonstrate the concept of mirror reflection (about the line y = x).
2. To verify that for a function f to be continuous at given point x_0 ,

SUMMER ASSIGNMENTS
SESSION 2024 -25
CLASS XII
SUBJECT: PHYSICS

A) Write the following Experiments and Activities in your Practical File:

SECTION (A)

1. To determine resistivity of two/three wires by plotting a graph for potential difference versus current.
2. To find resistance of a given wire/standard resistor using meter bridge.
3. To verify the laws of combination (series) of resistance using a meter bridge.
4. To verify the laws of combination (parallel) of resistance using a meter bridge.
5. To determine resistance of a galvanometer by half-deflection method and to find its Figure of merit.

Activity–(A)

(i) To assemble the component of a given electrical circuit.

(ii) To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a Power source.

(iii) To draw the diagram of given open circuit comprising of at least a battery, resistor / rheostat, ammeter and voltmeter. Mark the components that are not connected in the proper order and correct the circuit and also circuit diagram.

SECTION (B)

1. To find the focal length of convex lens by plotting graph between u and or between 1/u and 1/v.
2. To draw I –V characteristic curve for p-n junction diode in forward and reverse bias.
3. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
4. To find the value of length of a convex mirror, using convex lens.

Activity–(B)

(i) To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.

(ii) To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.

(iii) To study the nature and size of the image formed by a convex lens and concave mirror on a screen by using a candle and a screen. (For different distances of the candle from the lens / mirror)

B) ASSIGNMENT

Prepare a WORKING MODEL on static charges or moving charges /based on electric current.

Sanmati Higher secondary school, Indore

Session : 2025-26, Class-XII

Summer Assignment : Chemistry

Dear Students,

During the summer vacation, You are required to complete following 2 objectives :

1.) Complete the 4 practicals in your practical diary we are done so far.
   a) Prepare M/20 FAS(Ferrous Ammonium Sulphate) Solution.
   b) Prepare M/40 Oxalic Acid solution.
   c) Prepare M/20 FAS(Ferrous Ammonium Sulphate) Solution and using it find out the Molarity and Strength of unknown $KMnO_4$ Solution.
   d) Prepare M/40 Oxalic Acid solution and using it find out the Molarity and Strength of unknown $KMnO_4$ Solution.

Note : Kindly take care , Start new experiment from a new page after completing every experiment. Diagrams, Observation Table and Calculations should be on the unruled page rest on the ruled side. File should be neatly complete and clean with covered and labelled. Date of experiment and date of submission, will be written during regular classes.

2.) Prepare an investigatory project on any one topic of the following :

S.No.	Chemistry Investigatory Project Class 12 Topics
1	Study of diffusion of solids in liquids
2	Analysis of fertilizer
3	Sterilization of water using bleaching powder
4	To Prepare a Smoke Bomb
5	Aldol Condensation
6	Study of Constituents of an Alloy
7	Preparation of Toilet Soaps
8	Water concentration and texture
9	Measure the amount of acetic acid in vinegar
10	Removal of alcohol from the body through Esterification
11	Determination of contents in cold drinks
12	Measuring the solubility of a saturated solution
13	Compare the rate of evaporation of water
14	Black and white photography
15	Effects of voltage and concentration
16	Preparation of Potash Alum
17	Uses of exothermic reactions
18	Biodiesel formation
19	Electrochemical Cell
20	Neutralizing Ability of Antacid Tablets
21	Paper Chromatography
22	Presence of Oxalate Ions in Guava Fruit and Different Stages of Ripening
23	Determining the amount of phosphate in detergents
24	Sterilization of Water Using Bleaching Powder
25	Presence of Casein in Different Samples of Milk

कक्षा 12वी

विषय-हिंदी कोड ३०२

सन्मति उच्चतर माध्यमिक विद्यालय इंदौर

ग्रीष्मकालीन अवकाश गृहकार्य

1.आरोह भाग 2 लेखक हरिवंश राय बच्चन
"आत्मपरिचय" पाठ का पठन करे व कठिन शब्दो की एक सूची बनाए।

2. "मेरे सपनो का भारत" एक लेख लिखे।

3. वाचन,लेखन कौशल पर ध्यान देवे।

4. भक्तिन के जीवन से आपको क्या सीख मिली, आपके जीवन की आदर्श महिला कोन है, चित्र सहित अपने विचार लिखें।

5. महादेवी वर्मा जी द्वारा रचित किन्ही दो पुस्तकों को पढ़कर अपनी समीक्षा लिखें।

1रश्मि

2नीरजा

3निहार

4यामा

6. वर्तमान में प्रचलित इन दो पत्रिकाओं की समीक्षा लिखिए।

1. गृहशोभा

2. सरिता

7. आपके जीवन की प्रेरणा किसी व्यक्ति विशेष के जीवन पर प्रकाश डालते हुए चित्र सहित लेख लिखे।

Physical Education Class 11th & 12th

Summer Assignment

Progression of SAI Khelo India Fitness Test

Dear Athletes/Players,

Summer is the best time to storm your brain as there is no pressure on you and this is the best leisure time for you.

So keeping this in mind, I am sharing with you an assignment on SAI Khelo India Fitness Test.

"SAI Khelo India Fitness Test Summer Assignment"

Aim:

To understand and promote a healthy and fit lifestyle through the practice of SAI Khelo India Fitness Tests during the summer break.

Objectives:

1. Build cardiovascular endurance

2. Improve muscular endurance

3. Develop strength

4. Improve flexibility

5. Increase neuromuscular coordination

6. Maintain a healthy body weight

Instructions:

1. Read the SAI Khelo India Fitness Test PDF carefully to understand the tests and procedures.

2. Create a scorecard to track your performance.

3. Perform all tests on Day 1 and record your scores.

4. Practice the tests regularly and update your scorecard every week for 4 weeks.

5. Compare your progress and write a short note on your assignment journey.

6. Submit your final scorecard and reflection in June.

Precautionary Measures:

1. Avoid running in danger areas (e.g., roofs, traffic roads).

2. Avoid exercising if unwell or injured.

3. Avoid exercising after meals; maintain a 2.5-3 hour gap after heavy meals.

4. Practice with proper techniques as suggested in the PDF.

5. Gradually progress your exercises.

6. Avoid overexertion.

7. Maintain a healthy diet.

Benefits:

This assignment will help you develop a consistent fitness routine, track your progress, and understand the importance of physical fitness in maintaining a healthy lifestyle. It will also improve your sports performance.

Holiday Assignments
English

My Mother at Sixty Six

1. Describe the theme and Poetic devices used in the poem.

2. I looked again at her wan, pale as a late winter's moon and felt that old familiar ache, my childhood's fear but all I said was, see you soon, Amma, all I did was smile, smile, smile...

i. The parting words of the poet, "see you soon, Amma" suggest _____.

(a) Passion (b) Ache

(c) Happiness (d) Jealous

ii. "...all that the poet did was smile and smile and smile..." Her smile is:

(a) sudden, in responses to her mother's love (b) meaningful and loaded with

(c) accompanied with tears of farewell (d) put on to cheer her mother

iii. Why has the mother been compared to the late winter's moon?

(a) To refer to her pale and wan appearance (b) To emphasize that the mother is inching close to death

(c) To emphasize the mother is old at the age of 66 (d) None of these

iv. What is the poetic device used in the line – "all I did was smile, smile, smile..."?

(a) Simile (b) Metaphor

(c) Repetition (d) Personification

3. Read the extract given below and answer the questions that follow.

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. The poem "My Mother at Sixty-six" is written in a lyrical idiom. It means

i. It captures complex subtleties of human relationships.

ii. It highlights the universal bond between mother and daughter.

iii. It expresses emotions in an imaginative and artistic style.

iv. It captures the fear of losing someone near and dear.

b. Explain "her face ashen like that of a corpse..."

i. The ash colour of the face (b) The pale face of the mother

(c) The lost beauty of the mother (d) None of these

c. The literary device used in the line 'her face ashen like that of a corpse' is:

i. Personification (b) Simile

(c) Imagery (d) Metaphor

d. The mother beside the poet was:

i. Eating food (b) Looking outside the young trees and merry children

(c) Sleeping (d) Enjoying ride

4. Read the extract given below and answer the questions that follow.

...and realised with pain put that thought away, and looked out at Young Trees sprinting, the merry children spilling out of their homes, but after the airport's security check, standing a few yards away,

a. Why does the poet use the image of 'merry children spilling out of their homes'?

i. Because she likes to see kids play outdoors (b) To put away the thought of losing her mother

(c) Because she remembers her own carefree childhood (d) Because her mother liked when she used to play in the courtyard

b. What is the kind of pain and ache that the poet feels?

i. Growing old age of her mother (b) Corpse-like ashen face of her mother

(c) Realisation that the mother may not live long (d) None of these

c. Why are the young trees described as 'sprinting'?

i. On looking out from a moving vehicle, stationary objects seeing to be moving in the opposite direction

ii. The poet compared the trees to young children, with boundless energy running past her window

iii. The trees outside the car window rushed past her as the poet drove ahead, signifying distraction of her mind from the painful sight of her mother's ashen like face.

iv. None of these

d. Identify the figure of speech used in the phrase 'young trees sprinting'.

i. Repetition (b) Metaphor (c) Personification (d) Simile

The Last Lesson

1. Read the extract given below and answer the questions that follow.

When I passed the town hall there was a crowd in front of the bulletin-board. For the last two years all our bad news had come from there — the lost battles, the draft, the orders of the commanding officer — and I thought to myself, without stopping, "What can be the matter now?" Then, as I hurried by as fast as I could go, the blacksmith, Wachter, who was there, with his apprentice, reading the bulletin, called after me, "Don't go so fast, bub; you'll get to your school in plenty of time!"

a. Who was called 'bub'?

i. M. Hamel (b) Wachter (c) Franz (d) Old Hauser

b. What did the narrator think when the blacksmith called after him and said, "Don't go so fast, bub; you'll get to your school in plenty of time!"

i. The school was closed today. (b) It was the last lesson today.

(c) He was making fun of him. (d) None of these

c. Identify the tone in which the speaker said the words , "Don't go so fast, bub; you'll get to your school in plenty of time!''?

i. Sarcastic (b) Humorous (c) Depressive (d) Cheerful

i. What had been put up on the bulletin-board?

(a) The news of the lost battles

(b) The draft of the commanding officer

(c) The order from Berlin to teach only German in the schools of Alsace and Lorraine.

(d) All of these

2. Read the extract given below and answer the questions that follow.

Poor man! It was in honour of this last lesson that he had put on his fine Sunday clothes, and now I understood why the old men of the village were sitting there in the back of the room. It was because they were sorry, too, that they had not gone to school more.

i. Who was called 'Poor man'?

(a) Old Hauser (b) Franz (c) M. Hamel (d) Wachter

ii. What feelings were expressed by the villagers when they came to attend the last lesson?

(a) regret for not learning French

(b) thanking their master for his forty years of faithful service

(c) showing their respect for the country that was theirs no more.

(d) All of the above

iii. Why did the country belong to them no more?

(a) Because they were leaving the country. (b) Because Germans had taken over their country.

(c) Because it was destroyed in the war. (d) Because their country was merging with Prussia.

iv M. Hamel says, "...that's the great trouble with Alsace; she puts off _____ till tomorrow.

(a) time (b) money (c) language (d) learning

3. Read the extract given below and answer the questions that follow.

All at once the church-clock struck twelve. Then the Angelus. At the same moment the trumpets of the Prussians, returning from drill, sounded under our windows. M. Hamel stood up, very pale, in his chair. I never saw him look so tall. "My friends," said he, "I—I—" But something choked him. He could not go on. Then he turned to the blackboard, took a piece of chalk, and, bearing on with all his might, he wrote as large as he could — "Vive La France!" Then he stopped and leaned his head against the wall, and, without a word, he made a gesture to us with his hand — "School is dismissed — you may go."

i. What does 'Angelus' refer to?

(a) Sound of church bell ringing. (b) Roman catholic prayer.

(c) Sound of thanks giving. (d) A prayer sung in a group.

ii. What does the trumpets of the Prussians imply?

(a) Igniting patriotic fervour (b) Playing the band to reduce war stress

(c) People of Alsace are now enslaved (d) Prussians cheering up the victory over France

iii. Why is M. Hamel pale?

(a) He feels emotional and heart-broken. (b) He is unwell.

(c) He is annoyed. (d) He doesn't like the sound of the trumpets.

iv. "I never saw him look so tall." Why did Franz think that M. Hamel looked so tall?

(a) M. Hamel had grown physically taller. (b) M. Hamel seemed very confident.

(c) M. Hamel was wearing his fine Sunday clothes. (d) He stood on the chair.

4. Read the extract given below and answer the questions that follow.

While I was wondering about it all, M. Hamel mounted his chair, and, in the same grave and gentle tone which he had used to me, said, "My children, this is the last lesson I shall give you. The order has come from Berlin to teach only German in the schools of Alsace and Lorraine. The new master comes tomorrow. This is your last French lesson..."

i. What was the tone of M. Hamel when he was addressing his students?

(a) cheerful (b) excited (c) heart-broken (d) angry

ii. The grave and gentle tone in which M. Hamel spoke after getting the order from Berlin was due to:

(a) his patriotic feeling for his country (b) his love for his mother tongue

(c) the grief of not being able to teach French in future (d) All of these

iii. When would M. Hamel leave?

(a) the same day (b) the next day (c) after one week (d) after two weeks

iv. What did M. Hamel want from the students on the last day of French lesson?

(a) To give him a farewell. (b) To oppose the order from Berlin.

(c) To be very attentive. (d) To guard their language.

5. Read the extract given below and answer the questions that follow.

What a thunderclap these words were to me! Oh, the wretches; that was what they had put up at the town-hall! My last French lesson! Why, I hardly knew how to write! I should never learn any more! I must stop there, then! Oh, how sorry I was for not learning my lessons, for seeking birds' eggs, or going sliding on the Saar! My books, that had seemed such a nuisance a while ago, so heavy to carry, my grammar, and my history of the saints, were old friends now that I couldn't give up. And M. Hamel, too; the idea that he was going away, that I should never see him again, made me forget all about his ruler and how cranky he was.

i. "What a thunderclap these words were to me!". The words were:

(a) loud and clear. (b) startling and unexpected.

(c) pleasant and welcome. (d) None of these

ii. Who are called as 'Wretches'?

(a) People of France (b) Germans (c) Prussians (d) None of these

iii. What regret did Franz have?

(a) that he could never play in the school. (b) that he did not learn French.

(c) that he would miss his old friends and M. Hamel. (d) None of these

iv. What had been put up on the bulletin-board at the town-hall?

(a) The news of the lost battles

(b) The draft of the commanding officer

(c) The order from Berlin to teach only German in the schools of Alsace and Lorraine.

(d) All of these

Notice Writing

- You are Secretary of Gymkhana Club, Madurai. Write a notice informing the members to attend an extraordinary meeting of the governing body. Include details like date, time, venue etc. Sign as Prabhu/Pratibha.
- Due to a sudden landslide and inclement weather, St. Francis School, Vasco has to be closed for a week. As Principal of that school, draft a notice to be displayed at the school main gate notice board.
- As Sports Secretary of G.D.G. Public School, Pune, draft a notice for your school notice board informing the students about the sale of old sports goods of your school. You are Rohini/Rohit.
- You are the Secretary of your school Literary Association. Write a notice for your school notice board, giving details of the proposed inauguration of the Literary Association of your school. You are 'XYZ' of Jain Vidyashram, Cuddalore.
- As Librarian of Crescent International School, Gwalior, draft a notice asking all students and teachers to return the library books they have borrowed, two days before the commencement of the examination.
- While walking in a park in your neighbourhood you found a small plastic bag containing some documents and some cash. Write a notice to be put on the park notice board asking the owner to identify and collect it from you. You are Amar/Amrita .

Python Revision Tour -1

1. **Tokens/Lexical Unit:** An individual unit of the program.

2. **Types of Tokens:** **(i)** Identifier **(ii)** Keywords **(iii)** Literals **(iv)** Operators **(v)**Punctuators.

3. **Identifiers:** It is a name given to variable, functions and class etc…

4. **Keywords: Keywords are reserved words**, which serves for special purpose in python.

5. **Literals:** Literals are data items whose value cannot be changed.

6. **Types of Literals:**

(i) Numeric Literals:

Integers		**Float**		**Complex**	
valid	**invalid**	**valid**	**invalid**	**valid**	**invalid**
a=10	s=**0**3458	a=3.25		k=3+2j	j=3+2**i**

(ii) String Literal:(i) Single string (ii) Multi string

(iii)Boolean Literal:

valid	**invalid**
k=True	J=true
S=False	F=false

(iv)Special Literal:None is called special literal in python.

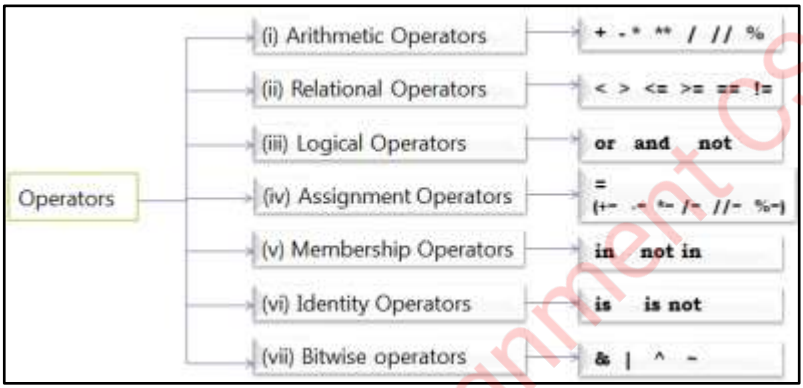
It indicates**absence of value**.

(v)Literal Collections: String, List, Tuple and Dictionary.

7. Operators: Operators are symbols which perform various mathematical or logical operations on operands.

8. Categories of Operators:(i) Unaryoperator-> Ex: S=not 54
(ii) Binary operator -> Ex: E=2+3

9. Types of operators: Seven types of operators are

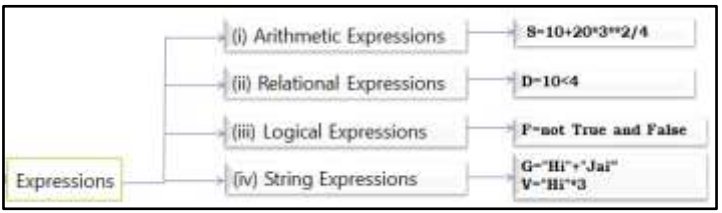


10. Variable and Assignments:

Ex 1	**Ex 2**	**Ex 3**	**Ex 4**
A=10	A=10,56,73 (tuple)	a=b=c=10 (Assigning same value to multiple variables)	G,J,L=True,56,87 (Assigning multiple values to multiple variables)

11.Expressions: An expression is a combination of operators, literals and variables.

12.Types of Expressions:



12. Operator Precedence:

Operators	Associativity
() Highest precedence	Left - Right
**	Right - Left
+x , -x, ~x	Left - Right
*, /, //, %	Left - Right
+, -	Left - Right
<<, >>	Left - Right
&	Left - Right
^	Left - Right
|	Left - Right
Is, is not, in, not in, <, <=, >, >=, ==, !=	Left - Right
Not x	Left - Right
And	Left - Right
Or	Left - Right
If else	Left - Right
Lambda	Left - Right
=, +=, -=, *=, /= Lowest Precedence	Right - Left

13. Comment Lines:

(i) Single line comment Line – Starts with **#**

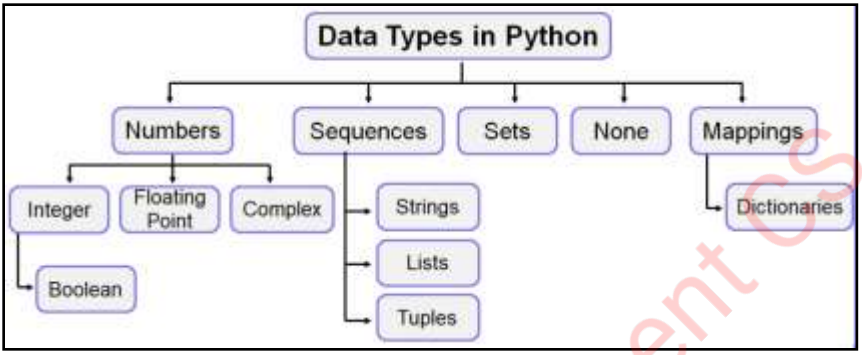
(ii) Multi line comment Line – Starts with'''(Triple-Quotes)

14. Escape Sequence:

Code	Result/Output	Description
\'	Single Quote	Add single quote with in a String
\\	Backslash	Insert single Back Slash
\n	New Line	\n takes the cursor to first position of a new line
\r	Carriage Return	\r takes the cursor to the first position of the same line
\t	Tab	\t add spaces of 8 characters
\b	Backspace	\b takes the cursor one position backward
\f	Form Feed	Form Feed is page breaking ASCII control character
\ooo	Octal value	Octal value
\xhh	Hex value	Hex value

15. Data Type: It specifies what type of data a variable going to hold in its memory.

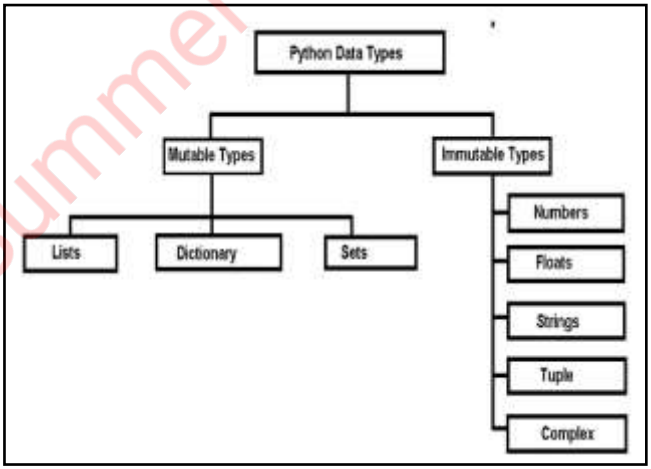
16. Types of Datatype:



17. Mutable and Immutable Types:

(i) Mutable: Objects whose value can change are said to be mutable.

(ii) Immutable: Objects whose value is unchangeable once they are created are called immutable.

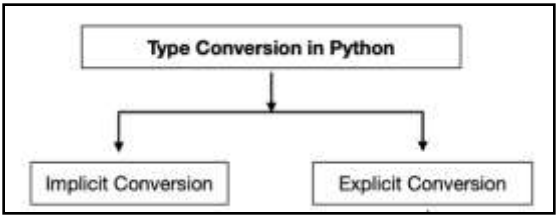


18. id() – Used to get address of the variable.

type() – Used to say the type of the variable/object

19. Type Conversion:
(OR)
Type Casting:

Type conversion is the process of converting a data type into another data type.



Implicit Conversion	Explicit Conversion
(i) It is performed by the interpreter.	(i) It is performed by the user by explicitly using type conversion functions.
(ii) It is also known as **"Coercion"**	(ii) It is also known as **"Type casting"**
(iii) **Example:** A=10 B=10.5 C=A+B **#Implicit** print(C) O/P: **20.5**	(iii) **Example:** A=10 B=10.5 C=int(A+B) **# Explicit** print(C) O/P: **20**

20. Type conversion functions:

From/To	int	Flo	Comp	Bool	String	List	Tup	Dic
int()	-	Y	N	Y	Y (int)	N	N	N
float()	Y	-	N	Y	Y(num)	N	N	N
complex()	Y	Y	-	Y	Y	N	N	N
bool()	Y	Y	Y	-	Y(All)	Y	Y	Y
str()	Y	Y	Y	Y	-	Y	Y	Y
list()	N	N	N	N	Y	-	Y	Y
tuple()	N	N	N	N	Y	Y	-	Y
dict()	N	N	N	N	N	Y (Nested)	Y (Nested)	-

21 .Control Statements:

Statements		Example
Selection	if	if 5>6: print("Hi")

	if – else	if 5>6:
		print("Hi")
		else:
		print("Hello")

	if-elif-else	if 4>6:
		print("Ji")
		elif 10>5:
		print("Hello")
		elif 7:
		print("Bye")
		else:
		print("Finished")

	Nested if elif else	a=10
		if a>1:
		if a>5:
		print("Hi")
		elif a%2==0:
		print("hello")
		elif a%3==0:
		print("K")

Looping	while (Condition Loop)	a=1 while a<=10: print(a) a=a+2

	for
	(Counting Loop)
		for i in range(5):
		print(i)
		
		for j in [1,54,42,53]:
		print(j)

Jump	break	for I in range(1,10,2):
		if I==6:
		break
		print(I)

	continue	for I in range(1,10,2):
		if I==6:
		continue
		print(I)

	pass	for I in range(1,10,2): **pass**

<table>
<tr><td rowspan="2">Nested Loop</td><td rowspan="2"></td><td>i=0
while i<=10:
j=0
while j<=3:
if j==2:
break
print(i,j)</td></tr>
<tr><td>for i in ranage(10):
for j in range(5):
if j==2:
break
print(i,j)</td></tr>
<tr><td>Loop with else</td><td>Working:
i. Whenever the condition becomes false in the beginning itself.</td><td>i=10
while i>1:
print(i)
else:
print("Hi")

O/P: Hi</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">ii. Whenever the loop finished its iteration.

<u>Not Working:</u>
If we use break in loop, then that time else will not work</td><td>for I in range(2):
print(I,end=' ')
else:
print("Hello")

O/P:
0 1 2
Hello</td></tr>
<tr><td>for I in range(4):
if I==3:
break
print(i)

else:
print("Hello")

O/P:
0
1
2</td></tr>
</table>

22. Mathematical Functions (import math)

FUNTION	DESCRIPTION	EXAMPLE	OUTPUT
pow(x, y)	Return the x to the power y value.	>>> math.pow(5, 8) >>> pow(5,-2)	390625.0 0.04
sqrt(x)	Finds the square root of x	math.sqrt(400)	20.0
ceil(x)	Returns the smallest integer, greater or equal to the number x.	>>> math.ceil(23.56) >>> math.ceil(-1.5)	24 1
floor(x)	Returns the largest integer, less or equal to the number x.	>>> math.floor(23.56) >>> math.floor(-1.5)	23 2
abs(x)	It returns the absolute value and remove the negative sign of a number.	>>> abs(-4)	4
fabs(x)	Returns the absolute value of x.	math.fabs(-96)	96.0
factorial (x)	Returns factorial of x. where x ≥ 0	math.factorial(5)	120
exp(x)	Finds xe, where e = 2.718281	math.exp(5)	148.4110
log (x[, base])	Returns the Log of x, where base is given. The default base is e	math.log(625, 5)	4.0
log2(x)	Returns the Log of x, where base is 2	math.log2(1024)	10.0
log10(x)	Returns the Log of x, where base is 10	math.log10(1024)	3.0102
sin(x)	Return the sine of x in radians	math.sin(math.radians (60))	0.8660
cos(x)	Return the cosine of x in radians	math.cos(math.pi))	-1.0
tan(x)	Return the tangent of x in radians	math.tan(math.pi/2))	1.63e+16
degrees(x)	Convert angle x from radian to degrees	math.degrees(8.90)	509.93
radians(x)	Convert angle x from degrees to radian	math.radians(180)	3.14193

23. random module(import random)

(i) random() **(ii) randrange(start,stop,step)**

(iii) randint(start,stop) # Start & Stop values are included

24. Statistics module(import statistics)

(i) mean() **(ii) median()** **(iii) mode**

PRACTICE QUESTIONS
STATE TRUE OR FALSE

1.	Python is a low level language.
2.	Python is a free source language.
3.	Python converts low level language to high level language.
4.	Python is a compiler.
5.	Python is case sensitive language.
6.	Python was named after famous BBC comedy show namely Monty Python's Flying Circus.
7.	Python is not a Cross-platform Language.
8.	All identifiers in Python are in lower case.
9.(i)	An identifier is a user defined name given to a variable or a constant in a program.
9.(ii)	Python does not allows same variable to hold different data literals / data types.
10.	Operators with the same precedence are evaluated in right to left manner.
11.	Interactive mode is used when a user wants to run a single line or one block of code.
12.	Script mode is used when the user is working with more than one single code or a block of code.
13.	In Python, a variable may be assigned a value of one type, and then later assigned a value of a different type.
14.	In Python, a variable must be declared before it is assigned a value.
15.	Variable names can be of any length.
16.	the complement operator inverts the value of each bit of the operand
17.	print(int(6>7-6-7*4)) will print boolean value.
18.	Logical operator not has highest precedence among all the logical operators.
19.	"is" is a membership operator in python.
20.	Following code will produce True as output: x=10>5>1 and -3<-2<-1 print(x)
21.	The value of expression 3/5*(7-2) and 3/(5*(7-2)) issame.
22.	The expression 4**3**2 is evaluated as (4**3)**2
23.	() have higher precedence that any other operator.
24.	print() always inserts a newline after each output.
25.	>>> 2*4+36/2-9 In the above expression 36/2 will be evaluated first by python.
26.	When syntax error is encountered, Python displays the name of the error and a small description about the error.

27.	"In Python, data type of a variable depends on its value"
28.	"Python identifiers are dynamically typed."
29.	(i) -88.0 is the output of the print(3-10**2+99/11) (ii) range( ) is also a module function
30.	"Comments in Python begin with a "$" symbol."
	ASSERTION & REASON
1.	**A:**It is interpreted language. **R:** Python programs are executed by an interpreter.
2.	**A:** Python is portable and platform independent. **R:**Python program can run on various operating systems and hardware platforms.
3.	**A:** Python is case-sensitive. **R:**Python does not use indentation for blocks and nested blocks.
4.	**A:** Python program is executed line by line. **R:** Python is compiled language.
5.	**A:** Python is an object oriented language **R:** Python is a cross platform language
6.	**A:** Python is case-sensitive. **R:** NUMBER and number are not same in Python
7.	**A:** Python is a high-level object-orientedprogramming language. **R:** It can run on different platforms like Windows,Linux, Unix, and Macintosh.
8.	**A:** An identifier cannot have the same name as of a keyword. **R:** Python interpreter will not be able to differentiate Between a keyword and an identifier having the same name as of a keyword.
9.	>>>print('Good'+' Morning') #Output :Goodmorning **A :** Incorrect Output **R:** There is a syntax error
10.	**A:** In Python comments are interpreted and are shown on the output screen. **R:** Single line comments in python starts with # character
11.	**A:** Python uses the concept of L-value andR-value, that is derived from the typical mode of evaluation on the left and right side of an assignment statement **R:** name = 'Raj' In the above code the value 'Raj' is fetched (Rvalue) and stored in the variable named – name (L value)
12.	**A :** Age=18 print(age) **R :** Variables are case sensitive

13.	**A:**>>> print(type((3 + 33)<-(-4 - 44))) **R :** As output is True which is a boolean value
14.	num1=input("enter a number") print(num1+2) **A:** The above code will give error message when executed. **R:**input() returns a string datatype. We cannot add stringdatatype with a numeric datatype. So, performingarithmetic operation on it will result in error.
15.	var1=10 var1="hello" **A:** The above code is invalid. We cannot assign adata of different data type to an existing variable. **R:** Python supports implicit type casting. So it is possible to assign a data of different data type to anexisting variable.
16.	**A:** You will get an error if you use doublequotes inside a string that is surrounded by doublequotes: **txt = "We are the so-called "Vikings" from the north."** **R:** To fix this problem, use the escapecharacter **\"**:
17.	**A:** Variables whose values can be changed afterthey are created and assigned are called immutable. **R:** When an attempt is made to update the value ofan immutable variable, the old variable is destroyed and a new variable is created by the same name in memory.
18.	**A:**To do arithmetic python usesarithmetic(+,*,//,**, -, / ,%) **R:**Each of these operators is a binary operator
19.	**A:** The relational operator determine therelation among different operand **R:**It returns the boolean value
20.	**A:**not has a lower priority than non-Booleanoperators **R:** So not a==b is interpreted as not(a==b)
21.	**A:**The ** operators is evaluated from right to left **R:**All operators are left associative
22.	**A:** for the given expression v1='1' v2= 1 v3= v1==v2 **#value of v3 is False** **R:** Integer value cannot be compared with string value.
23.	**A:** following given expression will result into TypeError

	str1="ABC" v1=[2] str3=str1*v1 **R:** operator '*' cannot be applied on string
24.	**A:**int('A') The above statement will result into error **R:** 'A' is not recognised by Python
25.	**A:** a=9, b=int(9.2) Both a and b have same value **R:**b is converted to integer explicitly
26.	**A:** In an expression, associativity is the solution to the order of evaluation of those operators which clashes due to same precedence. **R:** Operators in an expression may have equal precedence due to which the order of evaluation cannot be decided just by precedence.
27.	**A:**SyntaxError: Missing parentheses in call to 'print'. **R:**SyntaxError: It is raised when there is an error in the syntax of the Python code.
28.	**A:** NameError: name 'X' is not defined **R:**NameError: It is raised when the requested module definition is not found.
29.	**A:**ZeroDivisionError: division by zero **R:**ZeroDivisionError: It is raised when the denominator in a division operation is zero.
30.	**A:**TypeError: can only concatenate str (not "int") to str **R:**TypeError: It is raised when an operator is supplied with a value of incorrect data type.
31.	**A:** An example of an infinite loop is : while(1): **R:** A loop that continues repeating without aterminating (ending) condition is an infinite loop.
32.	**A:** The statements within the body of for loopare executed till the range of values is exhausted. **R:** for loop cannot be nested.

33.	Analyse the following code:
	for i in range(1,4):
	for j in range (1,i+1):
	print(j,end=' ')
	print()
	A: output is
	1
	12
	123
	R: Here, range function will generate value 1,2,3 in the outer loop and the inner loop will run for each value of "i" used in outer loop.

34.	**A:** Python provides two looping constructs for and while. The for is a counting loop and while is a conditional loop. **R:** The while is a conditional loop as we check the condition first, if it is satisfied then only we can get inside the while. In case of for it depends upon the counting statement of index.
35.	**A:** for loop in Python makes the loop easy to calculate factorial of a number **R:** While loop is an indefinite iteration that is used when a loop repeats unknown number of times and end when some condition is met.
36.	**A:** range(0,5) will produce list as [0,1,2,3,4] **R:**These are the numbers in arithmeticprogression(a.p.) that begins with lower limit 0 andgoes up till upper limit -1.
37.	**A:** To print the sum of following series 1 + 3 + 5.....n. Ravi used the range function in for loop asfollows :range(1,n+1,2) # 3 parameters **R:** In range function first parameter is start value,secondparameter is stop value & the third parameter isstep value.
38.	x = 0 for i in range(3,9,3): x = x * 10 + i print(x) **A:** The output of the above code will be 9. **R:**The loop will run for 2 times.

39.	for i in range(1, 6):
	for j in range(1, i):
	print("*", end=" ")
	print()
	A: In a nested loop, the inner loop must terminate before the outer loop.
	R:The above program will throw an error.

40.	**A:** break statement terminates the loop. **R:** The else clause of a Python loop executeswhen the loop continues normally.
41.	**A:**break statement appears in a nested loop. **R:**If the break statement is inside the inner loopthen it will not terminate the inner loop then it willterminate the outer loop only

42.	**A:** break statement terminates the loop it lieswithin. **R:** continue statement forces the next iteration ofthe loop to take place, skipping any code in between.
43.	**A:** The math.pow(2,4)gives the output: 16.0 **R:** The math.pow() method receives two float arguments, raise the first to the second and return the result.

OBJECTIVE TYPE QUESTIONS (MCQ)

1.	Python uses ____ to convert its instructions intomachine language. (a)Interpreter (b)Compiler (c)Both of the above (d)None of the above
2.	Who developed the Python language? (a) Zim Den (b)Wick van Rossum (c)Guido Van Rossum (d)NieneStom
3.	IDLE stands for _____ (a) Integrated Development Learning (b) Integrated Development Learning Environment (c) Intelligent Development Learning Environment (d) None of the above
4.	Python interpreter executes .....statement (Command) at a time. (a) Two (b) Three (c) One (d) All command
5.	Which of the following is not the feature of pythonlanguage? (a) Python is proprietary software. (b)Python is not case-sensitive. (c) Python uses brackets for blocks and nested blocks. (d) All of the above
6.	By default, the Python scripts are saved with_____ extension. (a) .pyp (b).pys (c).py (d)None of the above
7.	What is the maximum possible length of an identifier in python? (a) 16 (b) 32 (c) 64 (d) None of these
8.	>>> print("I" + "am" + "in" + "school") display (a) I am in school(b)I Am In School (c)Iaminschool(d)iaminschool
9.	Which of the following statement is correctsyntactically? (a) print(“Hello” , sep == ‘@’ , end =' ') (b)print(“Hello” , sep = ‘@’ , end = ' ') (c)Print(“Hello” , sep = ‘@’ , end = ' ') (d)print(“Hello” , sep = ‘@’ , end = ' '
10.	Which of the following is not a keyword in python? (a) eval (b) assert (c) nonlocal (d) pass
11.	Which of the following is not a valid declaration?

	(a) S=12 (b) V="J" (c) F=32.4 (d) H=0254
12.	Evaluate the following expression: **>>> not True or not False and False** (a) True (b) False (c) None (d) Will generate an Error
13.	All keywords in python except TRUE and FALSE are in ____? (a) Lower case (b) Upper case (c) Capitalized (d) None of the above
14.	Find the invalid identifier from the following (a) sub%marks (b) age (c) _subname_ (d) subject1
15.	Which of the following expressions is an example of type casting? (a) 4.0+float(6) (b) 5.3+6.3 (c) 5.0+3 (d) None of these
16.	Which of the following is an invalid identifier? (a) CS_class_XII (b) csclass12 (c) _csclass12 (d) 12CS
17.	The input() function always returns a value of ……..type. a) Integer b) float c) string d) Complex
18.	To include non-graphic characters in python, which of the following is used? a. Special Literals b. Boolean Literals c. Escape Character Sequence d. Special Literal – None
19.	Which of the following cannot be a variable name? (a) _init_ (b) in (c) it (d) on
20.	Which is valid keyword? (a) Int (b) WHILE (c) While (d) if
21.	Predict the output of the following: (i) >>>print(10 or 40) (ii) >>> print(22.0//5)
22.	Which of the following is an invalid operator in Python? (a) - (b) //= (c) in (d) =%
23.	Which of the following operators is the correct option for power(a,b)? (a) a ^ b (b) a **b (c) a ^ ^ b (d) a ^ *b
24.	Which of the characters is used in python to make a single line comment? (a)/ (b) // (c) # (d)!
25.	Which of the following is not a core data type in python? (a)List (b) Dictionary (c) Tuple (d) Class
26.	Which of the following has the highest precedence in python? (a)Exponential (b) Addition (c) Parenthesis (d) Division

27.	What is math.factorial(4.0)? (a) 20 (b) 24 (c) 16 (d) 64
28.	Identify the invalid variable name from the following. Adhar@Number, none, 70outofseventy, mutable
29.	Which of the following belongs to complex datatype (a) -12+2k (b) 4.0 (c) 3+4J (d) -2.05I
30.	None is a special data type with a single value. It is used to signify the absence of value in a situation (a) TRUE (b) FALSE (c) NONE (d) NULL
31.	If x=3.123, then int(x) will give ? (a) 3.1 (b) 0 (c) 1 (d) 3
32.	To execute the following code in Python, Which module need to be imported? **>>>print(_____.mean([1,2,3])**
33.	Find the invalid identifier from the following (a) Marks@12 (b) string_12 (c)_bonus (d)First_Name
34.	Find the invalid identifier from the following (a) KS_Jpr (b) false (c) 3rdPlace (d) _rank
35.	Find the valid identifier from the following: (a) Tot$balance (b) TRUE (c) 4thdata (d) break
36.	Which one of the following is False regarding data types in Python? (a) In python, explicit data type conversion ispossible (b) Mutable data types are those that can bechanged. (c) Immutable data types are those that cannot bechanged. (d) None of the above
37.	Which statement will give the output as : True from the following : a) >>>not -5 b) >>>not 5 c) >>>not 0 d) >>>not(5-1)
38.	Evaluate the following expression: **1+(2-3)*4**5//6** (a) -171 (b) 172 (c) -170 (d) 170
39.	The correct output of the given expression is: **True and not False or False** (a) False (b) True (c) None (d) Null
40.	What will the following expression be evaluated to in Python? print(6*3 / 4**2//5-8) (a) -10 (b) 8.0 (c) 10.0 (d) -8.0
41.	Evaluate the following expressions: **>>>(not True) and False or True** (a) True (b) False (c) None (d) NULL
42.	**>>> 16 // (4 + 2) * 5 + 2**3 * 4** (a) 42 (b) 46 (c) 18 (d) 32

43.	Evaluate the following expression: **True and False or Not True** (a) True (b) False (c) NONE (d) NULL
44.	The below given expression will evaluate to **22//5+2**2**3%5** (a)5 (b) 10 (c) 15 (d) 20
45.	Which of the following is not a valid identifier name in Python? a) First_Name b) _Area c) 2nd_num d) While
46.	Evaluate the following Python expression **print(12*(3%4)//2+6)** (a)12 (b)24 (c) 10 (d) 14
47.	Give the output of the following code: >>>import math >>>math.ceil(1.03)+math.floor(1.03) a) 3 b) -3.0 c) 3.0 d) None of the above
48.	>>>5 == True and not 0 or False (a) True (b) False (c) NONE (d) NULL
49.	Predict the output of the following: **from math import*** **A=5.6** **print(floor(A),ceil(A))** (a) 5 6 (b) 6 5 (c) -5 -6 (d) -6 -5
50.	Predict the output of the following code: **import math** **print(math.fabs-10))** (a) 1 (b) -10 (c) -10.0 (d) 10
51.	Which of the following function is used to know the data type of a variable in Python? (a) datatype() (b) typeof() (c) type() (d) vartype()
52.	Identify the invalid Python statement from the following. (a) _b=1 (b) b1= 1 (c) b_=1 (d) 1 = _b
53.	A=100 B=A Following the execution of above statements, python has Created how many objects and how many references? (a) One object Two reference (b) One object One reference (c) Two object Two reference (d) Two object One reference
54.	What is the output of the following code? **a,b=8/4/2, 8/(4/2)** **print(a,b)** (a) Syntax error (b) 1.0,4.0 (c) 4.0,4.0 (d) 4,4

55.	Predict output for following code **v1= True** **v2=1** **print(v1==v2, v1 is v2)** (a) True False (b) False True (c) True True (d) False False
56.	Find output for following given program **a=10** **b=20** **c=1** **print(a !=b and not c)** (a) 10 (b) 20 (c) True (d) False

57.	Find output of following given program :
	str1_ = "Aeiou"
	str2_ = "Machine learning has no alternative"
	for i in str1_:
	if i not in str2_:
	print(i,end='')
	(a) Au (b) ou (c) Syntax Error (d) value Error

58.	Find output for following given code **a=12** **print(not(a>=0 and a<=10))** (a) True (b) False (c) 0 (d)1
59.	What will be value of diff ? **c1='A'** **c2='a'** **diff= ord(c1)-ord(c2)** **print(diff)** (a) Error : unsupported operator '-' (b) 32 (c)-32 (d)0
60.	What will be the output after the following statements? x = 27 y = 9 while x < 30 and y < 15: x = x + 1 y = y + 1 print(x,y) (a) 26 11 (b) 25 11 (c) 30 12 (d) 26 10
61.	What output following program will produce **v1='1'** **v2= 1** **v3=v1==v2** (a) Type Error (b) Value Error (c)True will be assigned to v3 (d)False will be assigned to v3

62.	Which of the following operators has highest precedence: +,-,/,*,%,<<,>>,( ),** (a) ** (b) ( ) (c) % (d)-
63.	Which of the following results in an error? (a) float('12') (b) int('12') (c) float('12.5') (d) int('12.5')
64.	Which of the following is an invalid statement? (a) xyz=1,000,000 (b) x y z = 100 200 300 (c) x,y,z=100,200,300 (d) x=y=z=1,000,000
65.	Which of the following defines **SyntaxError?** (a) It is raised when the file specified in a program statement cannot be opened. (b) It is raised when there is an error in the syntax of the Python code. (c) It is raised when the requested module definition is not found. (d) It is raised due to incorrect indentation in the program code.
66.	Which of the following defines **ValueError?** (a) It is raised when the file specified in a program statement cannot be opened. (b) It is raised when there is an error in the syntax of the Python code. (c) It is raised when a built-in method or operation receives an argument that has the right data type but Mismatched or inappropriate values. (d) It is raised due to incorrect indentation in the program code.
67.	It is raised when the denominator in a division operation is zero. (a) IndexError (b) IndentationError c) ZeroDivisionError (d) TypeError
68.	It is raised when the index or subscript in a sequence is out of range. (a) IndexError (b) IndentationError (c) ZeroDivisionError (d) TypeError
69.	It is raised when a local or global variable name is not defined. (a) IndexError (b) IndentationError (c) ZeroDivisionError (d) NameError
70.	It is raised due to incorrect indentation in the program code. (a) IndexError (b) IndentationError (c) ZeroDivisionError (d) NameError

71.	It is raised when an operator is supplied with a value of incorrect data type. (a) IndexError (b) TypeError (c) ZeroDivisionError (d) NameError
72.	It is raised when the result of a calculation exceeds the maximum limit for numeric data type. (a) OverFlowError (b) TypeError (c) ZeroDivisionError (d) NameError
73.	IndentationError is a type of: (a) SyntaxError (b) Logical Error (c) Runtime Error (d) Other
74.	Which of following is not a decision-making statement? (a) if-elif statement (b) for statement (c) if -else statement (d) if statement
75.	In a Python program, a control structure: (a) Defines program-specific data structures (b) Directs the order of execution of the statements in the program (c) Dictates what happens before the program starts and after it terminates (d) None of the above
76.	Which one of the following is a valid Python if statement? (a) if a>=9: (b) if (a>=9) (c) if (a=>9) (d) if a>=9
77.	**if 4+5==10:** **print("TRUE")** **else:** **print("false")** **print ("True")** (a) False (b) True (c) false (d) None of these
78.	Predict the output of the following code: **X=3** **if x>2 or x<5 and x==6:** **print("ok")** **else:** **print(“no output”)** (a) ok (b) okok (c) no output (d) none of above
80.	identify one possible output of this code out of the following options: **from random import*** **Low=randint(2,3)** **High=randrange(5,7)** **for N in range(Low,High):** **print(N,end=' ')** (a) 3 4 5 (b) 2 3 (c) 4 5 (d) 3 4 5 6

81.	Given the nested if-else below, what will be the value x when the source code executed successfully:
	x=0
	a=5
	b=5
	if a>0:
	  if b<0:
	  x=x+5
	  elif a>5:
	  x=x+4
	  else:
	  x=x+3
	else:
	  x=x+2
	print (x)
	(a) 0 (b) 4
	(c) 2 (d) 3

82.	Which of the following is False regarding loops in Python? (a) Loops are used to perform certain tasks repeatedly. (b) while loop is used when multiple statements are to executed repeatedly until the given condition becomes true. (c) while loop is used when multiple statements are to executed repeatedly until the given condition becomes false (d) for loop can be used to iterate through the elements of lists.
83.	The for loop in Python is an _____ (a) Entry Controlled Loop (b) Exit Controlled Loop (c) Both of the above (d) None of the above
84.	What abandons the current iteration of the loop? (a) continue (b) break (c) stop (d) infinite
85.	The following code contains an infinite loop. Which is the best explanation for why the loop does not terminate? **n = 10** **answer = 1** **while n > 0:** **answer = answer + n** **n = n + 1** **print(answer)** (a) n starts at 10 and is incremented by 1 each time through the loop, so it will always be positive. (b) Answer starts at 1 and is incremented by n each time, so it will always be positive. (c) You cannot compare n to 0 in the while loop. You must Compare it to another variable. (d) In the while loop body, we must set n to False, and

	this Code does not do that.
86.	What will the following code print? **for i in range(1,4):** **for j in range(1,4):** **print(i, j, end=' ')** (a) 1 1 2 2 3 3 (b) 1 2 3 1 2 3 1 2 3 (c) 1 1 1 2 1 3 2 1 2 2 2 3 3 1 3 2 3 3 (d) 1 1 2 1 3 1 2 1 2 2 2 3 3 1 3 2 3 3
87.	When does the else statement written after loop executes? (a) When break statement is executed in the loop (b) When loop condition becomes false (c) Else statement is always executed (d) None of the above
88.	What will be the output of the following Python code? **for x in range(1, 4):** **for y in range(2, 5):** **if x * y > 6:** **break** **print(x*y, end="#")** (a) 2#3#4#4#6#8#6#9#12# (b) 2#3#4#5#4#6#6# (c) 2#3#4#4#6#6# (d) 2#3#4#6

89.	Examine the given Python program and select the purpose of the program from the following options:
	N=int(input("Enter the number"))
	for i in range(2,N):
	if (N%i==0):
	print(i)
	(a) To display the proper factors(excluding 1 and the number N itself)
	(b) To check whether N is a prime or Not
	(c) To calculate the sum of factors of N
	(d) To display all prime factors of the Number N.

90.	If A=rndom.randint(B,C) assigns a random value between 1 and 6(both inclusive) to the identifier A, what should be the values of B and C, if all required modules have already been imported? (a) B=0, C=6 (b) B=0,C=7 (c) B=1,C=7 (d) B=1,C=6
91.	Predict the output of the following code: **import statistics as S** **D=[4,4,1,2,4]** **print(S.mean(D),S.mode(D))** (a) 1 4 (b) 4 1 (c) 3 4 (d) 4 3

92.	The continue statement is used: (a) To pass the control to the next iterative statement (b) To come out from the iteration (c) To break the execution and passes the control to else statement (d) To terminate the loop
93.	Common types of exception in python are: (a) Syntax Error (b) Zero division error (c) (a) and (b) (d) None of these
94.	Which of the following is an incorrect logical operator in python? (a) not (b) in (c) or (d) and
95.	Which of the following is not a function/method of the random module in python? (a) randfloat( ) (b) randint( ) (c) random( ) (d) randrange( )
96.	Which of the following symbols are used for comments in Python? (a) // (b) & (c) /**/ (d) #
97.	print (id(x)) will print_____. (a) Value of x (b) Datatype of x (c) Size of x (d) Memory address of x
98.	What will the following expression be evaluated to in Python? >>> print((4.00/(2.0+2.0))) a)Error b)1.0 c)1.00 d)1
99.	Which of the following datatype in python is used to represent any real number : (a) int (b) complex (c) float (d) bool
100	>>> print((- 33 // 13) * (35 % -2)* 15/3) (a) 10.0 (b) -15.0 (c) 15.0 (d) -10.0
101	Which of the following statement(s) would give an error afterexecuting the following code? x= int("Enter the Value of x:")) #Statement 1 for y in range[0,21]: #Statement 2 if x==y: #Statement 3 print (x+y) #Statement 4 else: #Statement 5 print (x-y) # Statement 6 (a) Statement 4 (b) Statement 5 (c) Statement 4 & 6 (d) Statement 1 & 2

	2 – MARKS
1.	Evaluate the following expression: False and bool(15/5*10/2+1)
2.	If given A=2,B=1,C=3, What will be the output of following expressions: (i) print((A>B) and (B>C) or(C>A)) (ii) print(A**B**C)
3.	Write the output of the code given below: p=10 q=20 p*=q//3 p=q**2 q+=p print(p,q)
4.	Evaluate the following expressions: (a) 5 // 10 * 9 % 3 ** 8 + 8 – 4 (b) 65 > 55 or not 8 < 5 and 0 != 55
5.	Fill in the blanks to execute loop from 10 to 100 and 10 to 1 (i)for i in range(_____): print(i) (ii)for i in range(_____): print(i)
6.	Evaluate the following: >>> **print(15.0/4+(8*3.0))**

7.	Sona has written the following code to check whether number is divisible by 3. She could not run the code successfully. Rewrite the code and underline each correction done in the code.
	x=10
	for I range in (a)
	if i%3=0:
	print(I)
	else
	pass

8.	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.
	Value=30
	for VAL in range(0,Value)
	if val%4==0:
	print (VAL*4)
	Elseif val%5==0:
	print (VAL+3)
	else
	print(VAL+10)

9.	Mona has written a code to input a positive integer and display all its even factors in descending order. Her code is having errors. Rewrite the correctcode and underline the corrections made. **n=input("Enter a positive integer: ")** **for i in range(n):** **if i%2:** **if n%i==0:** **print(i,end=' ')**
10.	Find error in the following code(if any) and correct code by rewriting code and underline thecorrection;- x= int("Enter value of x:") for in range [0,10]: if x=y print(x + y) else: print(x-y)

11.	Mithilesh has written a code to input a number and evaluate its factorial and then finallyprint the result in the format : "The factorial of the <number> is <factorial value>" His codeis having errors. Rewrite the correct code and underline the corrections made.
	f = 0
	num = input("Enter a number:")
	n = num
	while num> 1:
	f = f * num
	num -= 1
	else:
	print("The factorial of : ", n , "is" , f)

12.	Rewrite the following code after removing the syntactical error(if any).Underline each correction: X=input("Enter a Number") If x % 2 =0: for i range (2*x): print i loop else: print "#"
13.	What possible outputs are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum value that can be assigned to each of the variables L and U. import random Arr=[10,30,40,50,70,90,100] L=random.randrange(1,3)

	U=random.randrange(3,6) for i in range(L,U+1): print(Arr[i],"@",end="") (i) 40 @50 @ (ii) 10 @50 @70 @90 @ (iii) 40 @50 @70 @90 @ (iv) 40 @100 @

14.	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction:
	x=input("Enter a number")
	if x % 2=0:
	print x, "is even"
	else if x<0:
	print x, "should be positive"
	else;
	print x "is odd"

15.	(i)Find the output generated by the following code: **a=5** **b=10** **a+=a+b** **b*=a+b** **print(a,b)**
	(ii)Answer the following questions from the following code: **num_list=["One","Two","Three","Four"]** **for c in num_list:** **print(c)** (i) What will be the output of the above code? (ii) How many times the loop executed?

16.	**Predict the output of the following code:**
	num=123
	f=0
	s=0
	while(num > 3):
	rem = num % 100
	if(rem % 2 != 0):
	f += rem
	else:
	s+=rem
	num /=100
	print(f-s)

17.	Evaluate the following expressions: a) 7*3+4**2//5-8 b) 7>5 and 8>20 or not 12>4

18.	Predict the output of the following:
	for i in range(4):
	if i==4:
	break
	else:
	print(i)
	else:
	print("Welcome")

19.	Anu wrote the code that, prints the sum of numbers between 1 and the number, for each number till 10.She could not get proper output.
	i = 1
	while (i <= 10): **# For every number i from 1 to 10**
	sum = 0 **# Set sum to 0**
	for x in range(1,i+1):
	sum += x **# Add every number from 1 to i**
	print(i, sum) **# print the result**
	a) What is the error you have identified in this code?
	b) Rewrite the code by underlining the correction/s.

20.	Evaluate the following expressions: a) 6+7*4+2**3//5-8 b) 8<=20 and 11
21.	Write the difference between break and continue.
22.	Predict the output of the following: X = 3 Y = 5 Z = -2 X *= Y + Z Y -= X * 2 + Y Z += X + Y print(X, Y, Z)
23.	Predict the output of the following code: X = 3 Y = 2 Z = -5 X -= Y + Z Y //= X - Z Z *= X + Y print(X, Y, Z)
24.	Predict the output of the following: M, N, O = 3, 8, 12 N, O, M = O+2, M*3, N-5. print(N,O,M)
25.	V, W, X = 20, 15, 10 W, V, X = X-2, V+3, W*2. print(V,X,W)

26.	**Predict the output of the following:**
	a=None
	b=None
	x=4
	for i in range(2,x//2):
	  if x%i==0:
	  if a is None:
	  a=i
	  else:
	  b=i
	  break
	print(a,b)

27.	Predict the output of the following:
	for i in range(1, 15, 2):
	 temp = i
	 if i%3==0:
	  temp = i+1
	 elif i%5==0:
	  continue
	 elif i==11:
	  break
	 print(temp, end='$')

28.	Predict the output of the following:
	P,S=1,0
	for X in range(-5,15,5):
	  P*=X
	  S+=X
	  if S==0:
	  break
	else:
	  print(P, "#", S)

29.	Predict the output of the following:
	for x in range(1, 4):
	  for y in range(2, 5):
	  if x * y > 6:
	  break
	  print(x*y, end="#")

30.	N=5
	C=1
	while (C<8):
	  if(C==3 or C==5):
	  C+=1
	  continue
	  print(C,'*',N,'=',C*N)
	  C+=1

****