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# Wiley-mthree Internship Recruitment: 2022 Pass-outs

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|---|---|---|
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## Part- I About Wiley mthree

**Kickstart your career with Wiley-mthree!**

For over 200 years, Wiley has empowered researchers, learners, universities, and corporations to achieve their goals in an ever-changing world. mthree joined the Wiley group in 2020, and together Wiley and mthree aim to close the skills gaps created by technological change.

We work with clients for the long-term, taking the time upfront to understand their business and workforce requirements to ensure commercial outcomes are achieved. We source, train, and hire diverse outstanding people with the skills that are most in demand and embed them into our client teams.



**Potential Job Roles**

- ✓ Software Developer
- ✓ C++ Developer
- ✓ Full-stack Developer
- ✓ Cloud/DevOps Engineer
- ✓ ETL Developer
- ✓ Site Reliability Engineer
- ✓ Production Support Analyst
- ✓ Database Engineer
- ✓ Automation Engineer
- ✓ Salesforce Developer
- ✓ Service Desk Analyst
- ✓ Mainframe Developer

**Eligibility Criteria**

- B.E/B. Tech/M.E/M. Tech/MCA in any Circuit branches.
- CS, IT, ECE, EEE, EIE and other Circuit branches
- 2022 graduating students with Excellent communication skills
- 60% aggregate in $10^{th}$, $12^{th}$/Diploma and Graduation and/or Post Graduation without standing arrears
- Good coding skills (Java/Python)
- Understanding of servers, storage, messaging, virtualization, network and application technologies
- Knowledge of Linux and Windows (ideally server)
- Ability to write SQL queries (ideally MySQL, Oracle or Sybase/SAP), ability to write scripts (bash, perl and/or python)
- Willingness to work in all these locations: Mumbai/Bangalore/Hyderabad/Pune/Chennai
- Passion and demonstrated interest in pursuing a tech career with top global banks

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## Salary

| Month | Salary |
|---|---|
| Month 01 to 06 | INR 07 LPA |
| Month 07 to 12 | INR 08 LPA |
| Month 13 to 18 | INR 09 LPA |
| Month 18 onwards | INR 11 LPA |

* *Conditions apply*

## Stipend

Interns will receive a stipend of **INR 20,000** if the program is fully online AND an additional **INR 30,000** if called for in-person training at Bangalore. Interns who successfully pass the Final Exam secure job offers to work with leading global banks with starting salary of 7 LPA and approx. 1 Lakh salary hike for every 6 months during the first 2 years*

## Part-II Recruitment Process



### Stage 1: ASSESSMENT

| Part | Module | No of Questions | Duration |
|---|---|---|---|
| Part-A | Aptitude & Technical Assessments (MCQ) | 52 | 65 mins |
| Part-B | Technical Coding | 2 (1 Java & 1 Python) | 50 mins |
| Part-C | Automated Asynchronous Video Round | 7 | 15 mins |

| | |
|---|---|
| **Part A - Aptitude & Technical Assessment**<br>○ Quantitative Ability<br>○ Technical Aptitude<br>○ Critical Thinking & Computational Logic<br>○ Verbal Ability<br>○ Code Syntax Analysis - Java or Python<br>(This is an elective section; you can select either of it but answering 1 section is mandatory) | *Once you finish the Part A Aptitude & Technical Assessment please wait on-screen for couple of minutes. You will get to know the result on-screen. If you do not clear Aptitude & Technical Assessment, then your process will end here.*<br>*If you clear the Aptitude & Technical Assessment, you will be asked to attend the Coding Assessment.*<br>*If you are asked to attend the Coding Assessment, then it is mandatory for you to participate in it.*<br>***Note:** You need to meet the section & sub-section cut-off of Aptitude & Technical Assessment to be considered for the Coding Assessment.* |

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| | |
|---|---|
| **Part B: Technical Coding**<br>○ Coding Assessment will include two questions on:<br>✓ Java Coding<br>✓ Python Coding<br>○ You can opt to answer the Java Coding Question or Python Coding Question or Both | *Once you finish the Coding Assessment: Please wait on-screen for couple of minutes. If you do not clear Coding Assessment, then your process will end here. If you clear the Coding Assessment, then you will be asked to attend the Automated/Async Video Assessment. If you are asked to attend the Automated Asynchronous Video Assessment, then it is mandatory for you to participate in it.* |
| **Part C: Automated Asynchronous Video Assessment**<br>○ Total duration of Video Assessment is 15 minutes<br>○ Format of Assessment: Video Answers<br>○ 7 Questions to be answered in 15 mins<br>○ Once you finish this assessment, you can submit & close the browser window. | *Once you finish this assessment, you can submit & close the browser window.* |



## Recruitment Stage 2: HR & TECHNICAL INTERVIEW

- Duration – 30 Mins
- Live Coding (Java & Python / Either of it)
- Communication & Interpersonal Skills, Career goals & Thought process

## Recruitment Stage 3: FINAL DISCUSSION

- Telephonic / Virtual Call
- Duration – 10-15 Mins

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**Part-III** **SAMPLE Test Paper**

**PART-A : Assessments**

## Quantitative Ability

Q1. Which of the following number is exactly divisible by 36?

a. 334566 b. 214875
c. 949288 d. 253584

Q2. The HCF of two numbers in the ratio 2 : 7 is 23. Find their LCM.

a. 322 b. 46
c. 151 d. 197

Q3. Find the least number that must be added to 34126 so that the resulting number is exactly divisible by 12.

a. 2 b. 4
c. 6 d. 8

Q4. What should be placed in place of *x* so that 23567*x*32 will be divisible by 11?

a. 4 b. 6
c. 5 d. 7

Q5. How many 4-digit numbers (without repetition of digits) can be formed by using the digits 0, 1, 2, 3, 4, 5, 6 and 7?

a. 1680 b. 1470
c. 750 d. 1820

Q6. How many sequences of answers are possible in a test having 12 multiple choice questions if each question has five choices?

a. 60 b. 12! X 5!
c. 12^5 d. 5^12

Q7. How many lines can be drawn through 18 points on a circle?

a. 121 b. 324
c. 204 d. 153

Q8. How many words with or without meaning can be formed by using the letters of the word 'COMMOTION'?

a. 30240 b. 27960
c. 36450 d. 33720

Q9. In a throw of two dice, what is the probability of getting a sum of at most 5?

a. $\frac{7}{36}$ b. $\frac{5}{18}$
c. $\frac{5}{36}$ d. $\frac{2}{9}$

Q10. X can do a piece of work in 30 days. Y can do the same work in 50 days. In how many days, will X and Y together complete the work?

a. 18 ¾ b. 39/8
c. 81/3 d. 38/9

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# Technical Aptitude

Q1. Let LASTPOST, LASTIN and LASTPRE denote the last vertex visited in a postorder, inorder and preorder traversal, respectively, of a complete binary tree. Which of the following is always true?

a. LASTIN-LASTPOST
b. LASTIN=LASTPRE
c. LASTPRE=LASTPOST
d. LASTPRE=LASTPRE

Q2. A single array *A*[1..MAXSIZE] is used to implement two stacks. The two stacks grow from opposite ends of the array. Variables top1 and top 2 (top 1 < top 2) point to the location of the topmost element in each of the stacks. If the space is to be used efficiently, the condition for 'stack full' is

a. (top 1 = MAXSIZE/2) and (top 2 = MAXSIZE/2 + 1)
b. top 1 + top 2 = MAXSIZE
c. (top 1 = MAXSIZE/2) or (top 2 = MAXSIZE)
d. (top 1 = MAXSIZE/2) or (top 2 = MAXSIZE)

Q3. Given two arrays of numbers $a_1, ..., a_n$ and $b_1, ..., b_n$ where each number is 0 or 1; the fastest -algorithm to find the largest span $(i, j)$ such that $a_i + a_{i+1} + \ldots + a_j = b_i + b_{i+1} + \ldots + b_j$, or report that there is not such span,

a. Takes $\cup(3^n)$ and $\Omega(2^n)$ time if hashing is permitted.
b. Takes $\cup(n^3)$ and $\Omega(n^{2.5})$ time in the key - comparison model.
c. Takes $\cup(n)$ time and space.
d. Takes $\Theta(\sqrt{n})$ time only if the sum of the $2n$ -elements is an even number.

Q4. What is the minimum number of stacks of size n required to implement a queue of size n?

a. One
b. Two
c. Three
d. Four

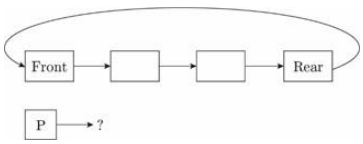
Q5. Assume that the operators +, −, × are left associative and ∧ is right associative. The order of precedence (from highest to lowest) is ∧, ×, +, −. The postfix expression corresponding to the infix expression $a + b \times c - d \wedge e \wedge f$ is

a. $abc \times + def \wedge \wedge -$
b. $abc \times + de \wedge f \wedge -$
c. $ab + c \times d - e \wedge f \wedge$
d. $- + a \times bc \wedge \wedge def$

Q6. Which of the following is NOT an advantage of using shared, dynamically linked libraries as opposed to using statically linked libraries?

a. Smaller sizes of executable files
b. Lesser overall page fault rate in the system
c. Faster program startup
d. Existing programs need not be re-linked to take advantage of newer versions of libraries

Q7. A circularly linked list is used to represent a queue. A single variable p is used to access the queue. To which node should p point such that both the operations enqueue and dequeue can be performed in constant time?




a. Rear node
b. Front node
c. Not possible with a single pointer
d. Node next to front

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# Critical Thinking and Computational Logic

Q1. Identify the number in place of '?' in the given series: 36 43 53 66 ? 101

a. 77 b. 72
c. 82 d. 85

Q2. Identify the number in place of '?' in the given series: –1, 2, 7, 14, 23, ?

a. 31 b. 29
c. 27 d. 34

Q3. In a certain code, GRANT is written as UOBSH and PRIDE is written as FEJSQ. How will SOLD be written as in the same code?

a. EPPT b. EPMT
c. EMPT d. TEMP

Q4. In the following question, some statements are followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion/s logically follow/s the given statements, disregarding commonly known facts.

**Statements:**

**I.** Some chairs are tablets.
II. No tablets is PC.

**Conclusions:**

I. No PC is chairs.
II. Some PC are chairs.

a. if only conclusion (I) follows b. if only conclusion (II) follows
c. if either conclusion (I) or (II) follows d. if neither conclusion (I) nor (II) follows

Q5. In the following question, assume the given statement to be true and find out which of the two conclusions, I and II, given below them is/are definitely true. Give answer accordingly.

**Statement:**

W < R = T > S ≥ J

**Conclusions:**

I. W = T
II. R < S

a. If only conclusion I is true b. If only conclusion II is true
c. If either conclusion I or conclusion II is true d. If neither conclusion I nor conclusion II is true

Q6. In the following question, a question followed by two statements is given.

How is Sana related to the man in the photograph?

Statements:

I. The man in the photograph is the only son of Sana's grandfather.
II. The man in the photograph has no brothers or sisters, and his father is Sana's grandfather.

a. if the data in statement (I) alone is sufficient to answer the question, while the data in statement (II) alone is not sufficient to answer the question

b. if the data in statement (II) alone is sufficient to answer the question, while the data in statement (I) alone is not sufficient to answer the question

c. if the data either in statement (I) alone or in statement (II) alone is sufficient to answer the question

d. if the data in both statements (I) and (II) together are not sufficient to answer the question

**Common Content for Q7 & Q8:**

Study the following table carefully and answer the questions based on it.

The given table shows the marks obtained by the five students of a class in three different subjects.

| Marks Obtained in Three Subjects | | | |
|---|---|---|---|
| Students | English | Maths | Science |
| A | 351.6 | 155.5 | 54.2 |
| B | 407.9 | 134.3 | 42.6 |
| C | 380.1 | 149.9 | 38.9 |
| D | 439.7 | 160.5 | 50.3 |
| E | 485.9 | 203.3 | 65.8 |

Q7. The marks obtained in English by D are approximately what per cent of marks obtained in English by A?

a. 75%
b. 85%
c. 116%
d. 125%

Q8. Identify the student who obtained maximum percent increase in Maths as compared to the previous one?

a. A
b. B
c. C
d. E

## Verbal Ability



**Q1 to Q6:** Find the correct replacement of the underline phrase:

Q1. The president bowled the audience over with his emphatic speech about the welfare measures formulated by the government.

a. bowled the audience over
b. balled the audience over
c. growled the audience over
d. stalled the audience over

Q2. They do not see a path to the top job amid people who have spent their careers in HR; instead, they are touting the prospects of executives who have had broad managerial experience that includes a developmental stint running the HR department.

a. They do not see a path to the top job amid people who have spent their careers in
b. They do not see a path to the top job among people who have spent their careers in
c. They do not see a way to the top job in people who have spent their careers in
d. They do not visualise a route among people who have spent their careers in

Q3. Bob wanted to know the reason why Jack divorced his wife, but then recalled that curiosity killed the cat.

a. being curious can get one into trouble
b. curiosity is not socially acceptable
c. the truth of personal difference can never be known
d. divorce is a topic that should not be discussed

Q4. In keeping vigil on the senior officers to control corruption, the minister was barking up the wrong tree.

a. to scare people into following rules
b. to be ineffective in taking a measure
c. to make a wrong choice
d. to be dishonest with one's work

Q5. After a new runway is built that would let large planes land and take-off, the airport at Jaipur will be like Delhi's.

a. will be like Delhi's
b. will be like in Delhi.
c. will be same as Delhi
d. will be as it is of Delhi

Q6. The low-cost Mars mission craft of India, which ISRO successfully placed in the Martian orbit a year back in September 2014, is now expected to last longer than previously expected because of the fuel it has been able to save.

a. which ISRO successfully placed in the Martian orbit a year back in September 2014,
b. which ISRO had successfully placed in the Martian orbit a year back in September 2014,
c. which ISRO could successfully placed in the Martian orbit a year back in September 2014,
d. which ISRO successfully placed in the Martian orbit a year back on September 2014,

Q7. So fragile are glass frogs, with skin so thin their organs are visible, Kubicki attributes their survival to a healthy Costa Ricanecosystem that allows less-hardy creatures to flourish.

a. So fragile are glass frogs,
b. For the reason glass frogs are so fragile,
c. Because of the reason glass frogs are very fragile,
d. Because glass frogs are so fragile,



**Q8 to Q11:** Choose the appropriate phrase to complete the sentence.

Q8. The food inspector's laboratories analysed the two samples picked from different stores but _____

a. hard to find any difference
b. hard to find any differences
c. failed to find any difference
d. failed to finding any differences

Q9. When contacted, Karthik said that he believed that_____

a. Ranjit is the best person for directing Sunil in the next movie
b. Ranjit was the best person for directing Sunil in the next movie
c. Ranjit will be the best person for directing Sunil in the next movie
d. Ranjit can be the best person for directing Sunil in the next movie

Q10. 'How much we used to read!' he lamented, _____as trekking was.

a. as though reading was a group activity just
b. as if reading were a group activity just
c. as if reading was a group activity similar
d. as if reading were a group activity so

Q11.Neither side seems serious about negotiating, and the region is becoming increasingly vulnerable to the Iran-Saudi divide that hasseen airstrikes kill at least 1,000 Yemenis____.

a. and displaced hundreds of thousands.
b. and displace many thousand.
c. and displace hundreds of thousands.
d. and displace a lot of thousands.

Q12. Yoga is a non-religious practice of physical and mental fitness and ____ hectic lifestyle.

a. are considered helping in today's
b. is considered helping in today's
c. are considered helpful in today's
d. is considered a help in today's

**Q13 to Q17:** Fill in the blank with the appropriate word.

Q13. Despite his long battle with illness, the boxer showed astonishing _____ in the ring.

a. Strength
b. Focus
c. Hesitancy
d. indolence

Q14. Although the actress received great reviews during her press conference throughout the country, her much awaited debut film wasmet with uniformly _____ reviews

a. electrifying
b. deprecating
c. appreciative
d. obsequious

Q15. The director is normally lauded for his exciting sci-fi films, but his latest effort was marred by itS _____ effects

a. Electrifying
b. breath-taking
c. bland
d. emotive

Q16. FCI has assured the government it will be able to implement recommendations of the panel that has _____ a complete _____ of the organisation.

a. recommended, revamp
b. resisted, haul up
c. insisted, departure
d. contested, statute

Q17. Within hours the tsunami had ended, serving to_____ the fears of thousands of residents who could not evacuate in time.

a. Aggravate b. Assuage c. Alleviate d. Annihilate

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# Code Syntax Analysis (MCQ) - Java

Q1. Consider the following line of code:

int[] somearray = new int[30];

Which one of the following options is a valid line of code for displaying the twenty-eighth element of some array?

a. System.out.println(somearray[28]);
b. System.out.println(somearray[27]);
c. System.out.println(somearray(27));
d. System.out.println(somearray(28));

Q2. What is the output of the following code fragment? int i = 1;

int sum = 0; while (i <= 11)

{

sum = sum + i; i++;

}

System.out.println("The value of sum is " + sum);

a. The value of sum is 56 b. The value of sum is 55 c. The value of sum is 66 d. The value of sum is 65

Q3. The process of hiding object data and providing methods for data access is called_____

a. initialization b. implementation c. documentation d. encapsulation

Q4. Which one of the following is a correct method for defining and initializing an integer variable with name value?

a. Int value = 30; b. int value = 30;
c. int value = .30; d. Int value = .30;

Q5. Insert the missing code in the following code fragment. This fragment is intended to read an input file named dataIn.txt.

1 public static void main(String[] args) throws FileNotFoundException 2

3 {

4

5 String inputFileName = "dataIn.txt"; 6

7 File inputFile = new File(inputFileName); 8

9 Scanner in = ; 10

11 . . .

12

13. }

a. new Scanner(inputFile)
b. new Scanner(inputFileName)
c. new Scanner(outputFileName)
d. new Scanner(System.in)

Q6. Which container is used to group multiple user-interface components together?

a. Text area b. Table c. Panel d. Rectangle

Q7. In each iteration, selection sort places which element in the correct location?

a. The smallest in the array

b. The largest element in the array
c. A random element
d. The smallest element not yet placed in prior iterations

Q8. A sequence of steps that is unambiguous, executable, and terminating is called _____.

a. an algorithm
b. a logarithm
c. a programming task
d. pseudocode

## Python Code Syntax Analysis (MCQ)

Q1. What is the output of the following code?

```
1  count = 1
2  If count != 0:
3      count+=1
4  elif count != 1:
5      count+=1
6  print(count)
7  count = 0
```

a. 1
b. 2
c. 0
d. 3

Q2. The following program returns the specified output. Your task is to fill the code snippet that will result in the exact same output.

Output:
0
2
4
6
8
10
12
14
16

```
1. i = 0
2. while i < 17:
3. print(i)
4. _____
5. i += 5
6. else:
7. print (0) 8
```

Q3. What is the output of following code?

```
1  count = 1
2  if count != 0:
3      count+=1
```

```
4  if count != 1:
5      count+=1
6  print(count)
7  count = 0
```

a. 0 b. 1
c. 2 d. 3

Q4. This is a program which reverses the string. Your task is to fill the code snippet that will result in the specified output.

**Output:** 'ELPMAS'

'SAMPLE'[_____]

Q5. The following program executes and returns the output given below. Please fill up the blank with suitable code snippet.

**Output:**
{'in2', 'like4', 'summer6', 'hello5', 'you3', '?1', 'mangoes7', 'no2'}

```
1  words = ['hello', 'you', 'no', 'like','mangoes', 'in', 'summer', '?']
2  print({_____for word in words})
```

Q6. What output does the following code snippet print?

1. var1 = 10//3
2. var1 = var1**2
3. print (round (var1, 2)) 4

a. 6 b. 6.00
c. 9 d. 9.00

Q7. Following program executes and returns the output given below. Please fill the correct statement to achieve the exact output.

**Output:**

100.0

150.0

200.0

250.0

300.0

1. **Program:**
2. large_number = '1020'
3. small_number = 102
4. result = int(large_number)/small_number + 40
5. for i in range(2, 7):
6. print(_____)

## Java Programming Question (Coding)

Q1: Create a program in Java, implementing multiple inner classes. Class A is the outer class, class B is inner class which is inside method of class A and class Local is the method local inner class inside method of class B. Access these classes from the mainmethod in class Test and override the method of class Local and print 'inside anonymous'.

Input Format

No console input.

Output Format

Refer sample input and output for formatting specifications.

| Sample Input | Sample Output |
|---|---|
| | inside B<br>inside anonymous |

Time Limit: - ms Memory Limit: - kb Code Size: - kb

## Python Programing question (Coding)

Q1. Write a program that takes input a number and prints the number of 1's in the binary of that number.

**Input Format**

An integer input in the first line

**Output Format**

Print the number of 1's in the binary of given input

| Sample Input | Sample Output |
|---|---|
| 3 | 2 |

Time Limit: - ms Memory Limit: - kb Code Size: - kb

## Quantitative Ability

**Answer Key & Solution**

Q1

253584

**Solution**

A number will be divisible by 36, if it is divisible by 4 and 9.
A number will be divisible by 4, if its last two digits are divisible by 4.
A number will be divisible by 9 if the sum of its digits is divisible by 9.
The last two digits number of 334566, 214875 and 494582 are 66, 75 and 82, which are not divisible by 4 hence not divisible by 36.
The last two-digit numbers of 949288 and 253584 are 88 and 84, which are divisible by 4, Hence 949288 and 253584 are divisible by 4.
For divisibility by 9:

$$9 + 4 + 9 + 2 + 8 + 8 = 40$$
$$2 + 5 + 3 + 5 + 8 + 4 = 27$$

Sum of the digits of 949288 is 40, which is not divisible by 9 and the sum of the digits of 253584 is 27, which is divisible by 9.
Hence 253584 is divisible by 36.

Q2

322

**Solution**

Since the numbers are in the ratio 2:7 and HCF is 23, the required LCM = 2 × 7 × 23 = 322

Q3

2

**Solution**

Divide 34126 by 12

After dividing, we get 10 as remainder.

So, the least number which must be added to 34126 to make it divisible by 12 is (12 – 10) = 2.

Q4

6

**Solution**

A number is divisible by 11 if the difference of the sum of numbers at even place and odd place is either 0 or divisible by 11.
The difference of the sum of numbers at even place and odd place = $2 + 5 + 7 + 3 - (3 + 6 + x + 2)$
$= 17 - 11 - x = 6 - x$
$6 - x$ is zero, when $x = 6$

Q5

1470

**Solution**

Number of ways to fill first place digit = 7 (0 is not allowed at first place)
Number of ways to fill second place digit = 7
Number of ways to fill third place digit = 6
Number of ways to fill fourth place digit = 5
Therefore, number of the possible 4 digit numbers = $7 \times 7 \times 6 \times 5 = 1470$

Q6

$5^{12}$ Solution

Since each question can be answered in 5 ways. Therefore,

total number of the possible sequence = $5^{12}$

Q7

153

**Solution**

$$\text{Number of the straight lines through 18 points on circle} = {}^{18}C_2 = \frac{18 \times 17 \times 16!}{2! \times 16!} = 153$$

Q8

30240

**Solution**

There are 9 letters in the word 'COMMOTION' out of which 2 M's and 3 O's are identical.
Therefore,

$$\text{Number of possible words} = \frac{9!}{2! \times 3!} = 30240$$

Q9

$\frac{5}{18}$

**Solution**

Favourable outcomes = (1, 1), (1, 2), (1, 3), (1, 4), (2, 1), (2, 2), (2, 3), (3, 1), (3, 2), (4, 1) = 10
Total number of outcomes in throw of two dice = 36. Therefore,

$$\text{Required probability} = \frac{10}{36} = \frac{5}{18}$$

Q10

18 3/4

**Solution**

X's one-day work = 1/30
Y's one-day work = 1/50
X and Y's one-day work

$$= \frac{1}{30} + \frac{1}{50} = \frac{8}{150} = \frac{4}{75}$$

Therefore, X and Y together can complete the work in $\frac{75}{4}$ days $= 18\frac{3}{4}$ days

## Technical Aptitude

Q1

LASTIN = LASTPRE

**Solution**

In postorder traversal – left node is visited first, right node is visited next and root node is visited in the last.In preorder traversal – root node is visited first, then left node and right node is visited in the last.

In inorder traversal – left node is visited first, then root node and right node is visited in the last.
So last visited node will always be same for inorder and preorder traversal.Therefore, LASTIN =

LASTPRE

Q2

(top 1 = MAXSIZE/2) or (top 2 = MAXSIZE)

(top 1 = MAXSIZE/2) or (top 2 = MAXSIZE)

**Solution**

If we are to use space efficiently then size of any stack can be more than MAXSIZE/2.

Both stacks will grow from both ends and if any of the stack top reaches near to the other top then stacks are full. So, the condition will betop1 = top2 -1

(given that top1 < top2)

Q3

Takes $\cup(n)$ time and space.

**Solution**

Takes $\Theta\left(\sqrt{n}\right)$ time only if the sum of the $2n$ -elements is an even number.

Q4

Two

**Solution**

A queue can be implemented using two stacks.Stack 1 is

used to push all elements.

Stack 2 is used to push all elements from stack 1 to stack 2 and pop the element from stack 2 and returnit.

Q5 $abc \times + def \wedge \wedge -$

**Solution**

$a + b \times c - d \wedge e \wedge f$

$a + b \times c - d \wedge ef \wedge$

$a + b \times c - def \wedge \wedge$

$a + bc \times - def \wedge \wedge$

$abc \times + - def \wedge \wedge$

$abc \times + def \wedge \wedge -$

Q6 Existing programs need not be re-linked to take advantage of newer versions of libraries

**Solution**

The shared, dynamic linked libraries use smaller sizes of executable files, lesser overall page fault rate and faster startup of programs.

Q7 Not possible with a single pointer

**Solution**

Required condition is not possible with single pointer.

## Critical Thinking and Computational Logic

Q1 82

**Solution**

The pattern of the series is,36 +

7 = 43

43 + 10 = 53

53 + 13 = 66

66 + 16 = 82

82 + 19 = 101

Hence, the required term is 82.

Q2 34

**Solution**

The pattern of the series is as follows:

$-1 + 3 = 2$

$2 + 5 = 7$

$7 + 7 = 14$

$14 + 9 = 23$

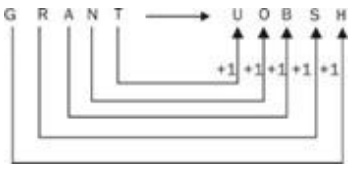
So, the next number = 23 + 11 = 34

Q3

EMPT

**Solution**

Find the logic used in GRANT and UOBSH. The logic is:

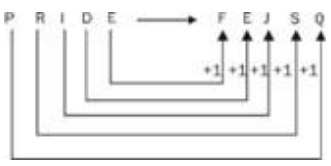



The logic used in the code is as follows:(+1),

(+1), (+1), (+1), (+1), (+1)

This logic applies from right to left.

Find the logic used in PRIDE and FEJSQ. The logic is:

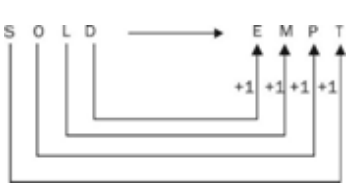



The logic used in the code is as follows:(+1),

(+1), (+1), (+1), (+1), (+1)

This logic applies from right to left.

In the same manner, SOLD is written as:

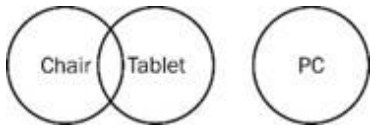



SOLD will be written as EMPT.

Q4

if either conclusion (I) or (II) follows

**Solution**




Thus, either conclusion (I) or conclusion II follows.

Q5

If neither conclusion I nor conclusion II is true

**Solution**

From the given statement, we can see that W is strictly smaller than R and R is equal to T, therefore, W is strictly smaller than T. And, S isstrictly smaller than T and T is equal to R. Therefore, R is strictly greater than S. Hence both conclusions are false.

Q6 if the data either in statement (I) alone or in statement (II) alone is sufficient to answer the question

**Solution**

From statement (I), we know that the man in the photograph is Sana's father, and we can conclude the same relation from statement (II) also.

Q7. 125%

**Solution**

Marks obtained by D in English = 439.7
Marks obtained by A in English = 351.6

$$\text{Required percentage} = \frac{439.7}{351.6} \times 100\% = 125.06\% \approx 125\%$$

Q8. E

**Solution**

Increase in marks obtained by C in Maths

$$= \frac{149.9-134.3}{134.3} \times 100 = 11.6\,\%$$

$$\text{Increase in marks obtained by D in Maths} = \frac{160.5-149.9}{149.9} \times 100 = 7\,\%$$

$$\text{Increase in marks obtained by E in Maths} = \frac{203.3-160.5}{160.5} \times 100\,\% = 26.6\%$$

## Verbal Ability

Q1 bowled the audience over

**Solution**

No Solution

Q2 They do not see a path to the top job among people who have spent their careers in

**Solution**

No Solution

Q3 being curious can get one into trouble

**Solution**

No Solution

Q4 to make a wrong choice

**Solution**

No Solution

Q5 will be like Delhi’s.

**Solution**

No Solution

Q6 which ISRO had successfully placed in the Martian orbit a year back in September 2014,

**Solution**

No Solution

Q7 Because glass frogs are so fragile,

**Solution**

No Solution

Q8 failed to find any difference

**Solution**

No Solution

Q9 Ranjit was the best person for directing Sunil in the next movie

**Solution**

No Solution

Q10 as if reading were a group activity just

**Solution**

No Solution

Q11 and displace hundreds of thousands.

**Solution**

No Solution

Q12 is considered a help in today’s

**Solution**

No Solution

Q13 strength

**Solution**

No Solution

Q14 deprecating

**Solution**

No Solution

Q15 bland

**Solution**

No Solution

Q16 recommended, revamp

**Solution**

No Solution

Q17 assuage

## Code Syntax Analysis (MCQ)

Q1

System.out.println(somearray[27]);

**Solution**

No Solution

Q2

The value of sum is 66

**Solution**

No Solution

Q3

encapsulation

**Solution**

No Solution

Q4

int value = 30;

**Solution**

No Solution

Q5

new Scanner(inputFile)

**Solution**

No Solution

Q6

panel

**Solution**

No Solution

Q7

The smallest element not yet placed in prior iterations.

**Solution**

No Solution

3

Q8 an algorithm

**Solution**

No Solution

## Python Code Syntax Analysis (MCQ)

Q1 2

**Solution**

No Solution

Q2 i-=3

**Solution**

Q3 3

**Solution**

No Solution

Q4 : : -1

**Solution**

Q5 word+str(len(word))

**Solution**

Q6 9

**Solution**

No Solution

Q7 result*i

**Solution**

Q8 num**2+10

**Solution**

## Java Programming Question (Coding)

Q1

**Test Case**

| Input | Output |
| --- | --- |
| | inside B<br>inside anonymous |

**Weightage - 100**

| Sample Input | Sample Output |
| --- | --- |
| | inside B<br>inside anonymous |

**Solution**

```
class A {
    void methodA(String inside){ inside =
        "inside A";
        System.out.println(inside);
    }
    class B{
        void methodB(String inside){ inside =
            "inside B"; System.out.println(inside);
            class Local{
                void methodLocal(String inside){ inside = "class
                    inside method";
                    System.out.println(inside);
                }
            }
            Local local = new Local(){
                void methodLocal(String inside){ inside =
                    "inside anonymous";
                    System.out.println(inside);
                }
            };
            local.methodLocal(inside);
        }
    }
}
class Test {
    public static void main(String [] args) {String variable =
        "inside main";
        A a = new A();
        A.B b = a.new B(); b.methodB(variable);
        //new A().new B().methodB();
```

```
        }
    }
```

## Python Programing question (Coding)

Q1

**Test Case**

**Input**

7

**Output**

**Weightage - 10**

**Input**

5

**Output**

2

**Weightage - 10**

**Input**

15

**Output**

4

**Weightage - 15**

**Input**

16

**Output**

1

**Weightage - 15**

**Input**

31

**Output**

5

**Weightage - 15**

**Input**

63

**Output**

6

**Weightage - 15**

**Input**

**Output**

| | |
|---|---|
| 255 | 8 |

**Weightage - 20**

**Sample Input**

| |
|---|
| 3 |

**Sample Output**

**Solution**

```
def countSetBits(num): binary = bin(num)
setBits = [ones for ones in binary[2:] if ones=='1'] print (len(setBits))

if __name__ == "__main__":
    num = int(input()) countSetBits(num)
```

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