

AAYULOGIC PVT. LTD.
TECHNICAL TEST

Duration: 2 hours

PYTHON

1. What is namespace in Python? Discuss with an example.
2. What is monkey patching in Python?
3. What is the use of *args and **kwargs ? Give suitable examples for both of these .
4. What is the difference between list.sort() and sorted(list) .
5. What is the use of @staticmethod , @classmethod in python? Give a suitable example with an explanation of when you need to use it.
6. What is an exception? Create a custom exception. Take any example and explain your code.
7. What is the difference between mutable and immutable data? Give an example. Is string mutable ? Why ? Why not?
8. WAP to format Datetime to string representation as **yyyy-hh-mm-ss**
9. What is the use of debuggers ? What do you use in your projects for debugging ? Write steps or explain .
10. Give proper examples of implementation of list comprehension , tuple comprehension , dictionary comprehension .

DJANGO

11. How is the background task scheduled in Django? Which solution do you prefer and why?
12. What are the HTTP methods supported by REST? What is the difference between PUT and PATCH?
13. Explain about Django ORM. Glve code examples(considering a simple model). You can assume your own models.
14. Explain what is REST and RESTFUL? Mention some key characteristics of REST.
15. What is TDD? What is Unit Testing? How is testing done in Django?

DATABASE

16. What is a RDBMS? Why do we need indexing in database tables?
17. What is Normalization? Give your understanding of the definition of 1NF, 2NF, 3NF.

MISC

18. What is a 'conflict' in git? How can it be resolved?
19. Write five git commands with their usage.

PROGRAMMING QUESTIONS

1. What is the output of the following? Explain

```
1 f = None
2
3 for i in range(5):
4     with open("data.txt", "w") as f:
5         if i > 2:
6             break
7
8 print f.closed
```

- a) True
 - b) False
 - c) None
 - d) Error
2. Looking at the below code, write down the final values of A0, A1, ...A6.

```
A0 = dict(zip(('a', 'b', 'c', 'd', 'e'), (1, 2, 3, 4, 5)))
A1 = range(10)
A2 = sorted([i for i in A1 if i in A0])
A3 = sorted([A0[s] for s in A0])
A4 = [i for i in A1 if i in A3]
A5 = {i:i*i for i in A1}
A6 = [[i, i*i] for i in A1]
```

3. Here are some words translated from an artificial language.

hapllesh means cloudburst

srenchoch means pinball

resbosrench means ninepin

Which word could mean "cloud nine"?

- a. leshsrench
- b. ochhapl
- c. haploch
- d. haplresbo

DATABASE

1. Given the following table, normalize it up to 3NF, showing each normal form individually.

FULL NAMES	ADDRESS	VEHICLES	SALUTATION
Ram Raut	Thimi, Bhaktapur	Scooter	Mr.
Ram Raut	Thimi, Bhaktapur	Car	Mr.
Sita Kusum	New Road, Kathmandu	Motorcycle	Mrs.
Sita Kusum	New Road, Kathmandu	Jeep	Mrs.
Sita Kusum	Jawalakhel, Lalitupr	Car	Mrs.