IIT KANPUR
Indian Institute of Technology Kanpur

EE904 Final Exam 2023-24 Q3

Venkateswar Reddy Melachervu | 16 Mar 2024

IIT KANPUR
Indian Institute of Technology Kanpur

Test Name::

EE904 Final Exam 2023-24 Q3

Overall Status: Completed Detailed Status: Test-taker Completed | Test Finish Time: March 16, 2024 09:16:43 PM IST

VR

Venkateswar Reddy Melachervu

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Test-Taker ID: - 130252442

Credibility Index: LOW

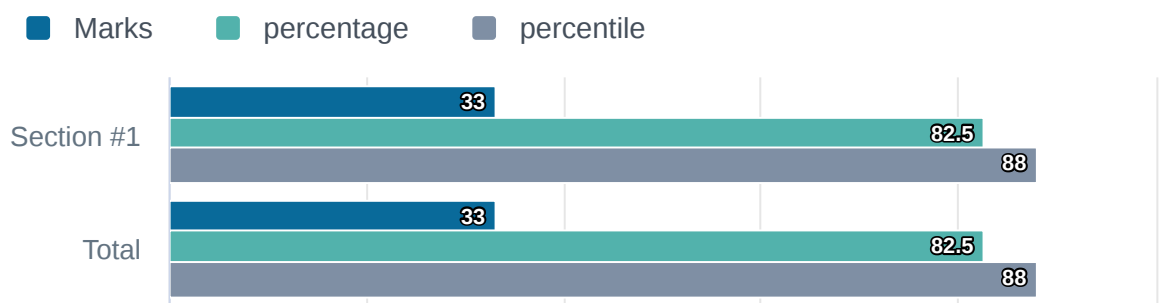
Profile Picture Snapshot

Identity Card Snapshot

Overall Summary

33 Marks Scored out of 40	82.5 % 88.24 percentile out of 17 Test Takers	2h 14m 50s Time taken of 2hr 15mins

Marks Scored



Attempt Summary

Distribution of questions attempted in a total of 40 question(s).

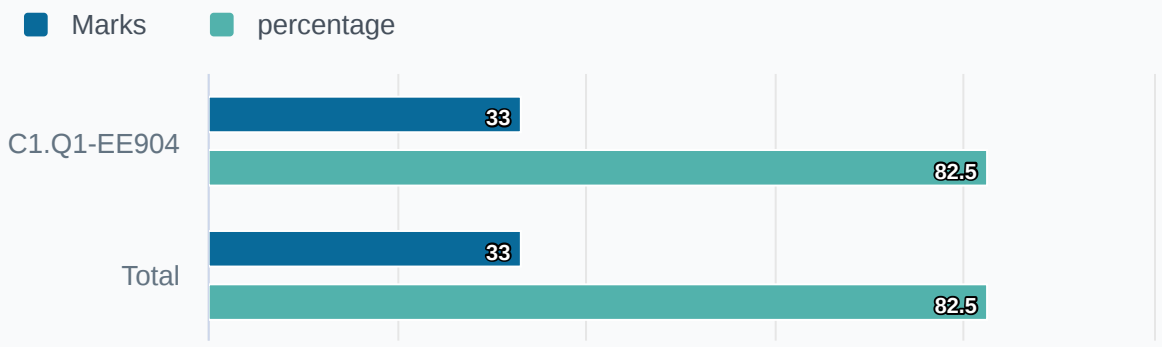
This shows the correctness of questions attempted by the test taker

Correct	33 Ques	33/33 Marks
Incorrect	7 Ques	0/7 Marks
Partially Correct	0 Ques	0/0 Marks
Not Attempted	0 Ques	0/0 Marks

Section-Wise Details

Section	question(s)	Time taken	Marks Scored
Section #1	40 Q.	2h 14m 50s (Untimed)	33 / 40

Marks Scored



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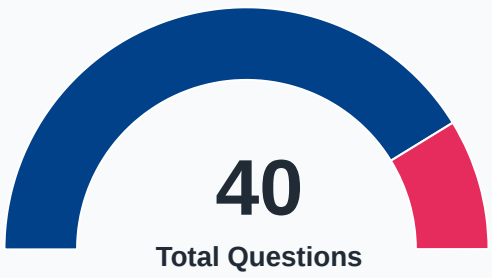

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Question-Wise Details

Section 1
Section #1

40
question(s)

2h 14m 50s
Time taken

Q. 1

Question 1

Time taken: 1m

The applications of Artificial Intelligence are ……

Response:

OPTIONS	RESPONSE	ANSWER
Expert Systems		
Smart agriculture		
Vision Systems		
All of the above	✓	✓

Q. 2

Question 2

Time taken: 24s

If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as the__

Response:

OPTIONS	RESPONSE	ANSWER
Mobile		
Non-Servo		
Open Loop		
Intelligent	✓	✓

Q. 3

Question 3

Time taken: 32s

An AI agent perceives and acts upon the environment using___.

Response:

OPTIONS	RESPONSE	ANSWER
a) Sensors		
b) Perceiver		
c) Actuators		
Both a and c	✓	✓

Q. 4

Question 4

Time taken: 37s

The categories in which Machine learning approaches can be traditionally categorized are _____ .

Response:

OPTIONS	RESPONSE	ANSWER
Supervised learning		
Unsupervised learning		
Reinforcement learning		
All of the above	✓	✓

Q. 5

Question 5

Time taken: 2m 39s

_____ is the machine learning algorithms that can be used with labelled data.

Response:

OPTIONS	RESPONSE	ANSWER
Regression algorithms		
Classification algorithms		
Clustering and then association algorithms		
All of the above	✓	✓

Q. 6

Question 6

Time taken: 23s

How many layers Deep learning algorithms are constructed?

Response:

OPTIONS	RESPONSE	ANSWER
3		
50		
19		
All of above	✓	✓

Q. 7

Question 7

Time taken: 5m 40s

Assume that your machine has a large enough RAM dedicated to training neural networks. Compared to using stochastic gradient descent for your optimization, choosing a batch size that fits your RAM will lead to

Response:

OPTIONS	RESPONSE	ANSWER
a more precise but slower update.	✓	✓
a less precise but faster update.		
a less precise and slower update.		
a more precise and faster update.		

Q. 8

Question 8

Time taken: 2m 12s

Which of the following is well suited for perceptual tasks?

Response:

OPTIONS	RESPONSE	ANSWER
Reinforcement Learning		
Recurrent Neural Networks	✓	
Convolutional Neural Networks		✓
Feed-forward Neural Networks		

Q. 9

Question 9

Time taken: 1m 31s

Which of the following is not a type of matrix?

Response:

OPTIONS	RESPONSE	ANSWER
Square Matrix		
Scalar Matrix		
Trace Matrix	✓	
Term Matrix		✓

Q. 10

Question 10

Time taken: 5m 56s

The matrix representation which is the sum of all the diagonal elements of a square matrix?

Response:

OPTIONS	RESPONSE	ANSWER
a) Diagonal		
b) Trace	✓	✓
c) Identity		
d) Both A and B		

Q. 11

Question 11

Time taken: 44s

Classification and Regression are, _____ and approach followed is _____.

Response:

OPTIONS	RESPONSE	ANSWER
Supervised, Learning	✓	✓
Unsupervised, Learning		
Reinforcement, Learning		
Supervised, Rule-based		

Q. 12

Question 12

Time taken: 1m 4s

Which of the following metrics are used to evaluate classification models?

Response:

OPTIONS	RESPONSE	ANSWER
Area under the ROC curve		
F1 score		
Confusion matrix		
All of the above	✓	✓

Q. 13

Question 13

Time taken: 1m 28s

The important step of supervised learning for ‘the type of training dataset’ include:

Response:

OPTIONS	RESPONSE	ANSWER
Problem Identification		
Identification of Required Data		
Data Pre-processing		
Definition of Training Data Set with labels	✓	✓

Q. 14

Question 14

Time taken: 34s

Why do we need to study or analyze biological neural networks?

Response:

OPTIONS	RESPONSE	ANSWER
To make smart human interactive & user friendly system		
To apply heuristic search methods to find solutions of problem		
To solve tasks like machine vision & natural language processing		
All of the above	✓	✓

Q. 15

Question 15

Time taken: 2m 12s

_____ computes the output volume by computing dot product between all filters and image patch

Response:

OPTIONS	RESPONSE	ANSWER
Input Layer		
Convolution Layer	✓	✓
Pool Layer		
Activation Function Layer		

Q. 16

Question 16

Time taken: 4m 34s

The number of nodes in the input layer is 10 and the hidden layer is 5. The maximum number of learnable parameters within the input layer to the hidden layer are :

Response:

OPTIONS	RESPONSE	ANSWER
50		
60		
55	✓	✓
15		

Q. 17

Question 17

Time taken: 58s

The input image has been converted into a matrix of size 28 X 28 and a kernel/filter of size 7 X 7 with a stride of 1. What will be the size of the convoluted matrix?

Response:

OPTIONS	RESPONSE	ANSWER
20x20		
21x21		
22x22	✓	✓
25x25		

Q. 18

Question 18

Time taken: 9m 20s

Which of the following statements is true when you use 1×1 convolutions in a CNN? (Multiple options may be correct)

Response:

OPTIONS	RESPONSE	ANSWER
It can help in channel dimensionality reduction	✓	✓
It can help in channel dimensionality increment		✓
It can be used for feature pooling		
It suffers less overfitting due to small kernel size		

Q. 19

Question 19

Time taken: 6m 38s

How are weights updated in feature maps?

Response:

OPTIONS	RESPONSE	ANSWER
updated for winning unit only		
updated for neighbours of winner only		
updated for winning unit and its neighbours		✓
none of the mentioned	✓	

Q. 20

Question 20

Time taken: 59s

Which type of Programming does Python support?

Response:

OPTIONS	RESPONSE	ANSWER
object-oriented programming		
structured programming		
functional programming		
all of the mentioned	✓	✓

Q. 21

Question 21

Time taken: 6m 19s

1. What will be the output of the following Python code?

```
i = 1
while True:
    if i%3 == 0:
        break
    print(i)
    i + = 1
```

Response:

OPTIONS	RESPONSE	ANSWER
1 2 3		
1		
1 2	✓	✓
none of the mentioned		

Q. 22

Question 22

Time taken: 2m 13s

What are the values of the following Python expressions?

2**(3**2)

(2**3)**2

2**3**2

Response:

OPTIONS	RESPONSE	ANSWER
512, 64, 512	✓	✓
512, 512, 512		
64, 512, 64		
64, 64, 64		

Q. 23

Question 23

Time taken: 2m 12s

1. What will be the output of the following Python code?

```
l=[1, 0, 2, 0, 'hello', '', []]
list(filter(bool, l))
```

Response:

OPTIONS	RESPONSE	ANSWER
[1, 0, 2, ‘hello’, ‘’, []]		
Error		
[1, 2, ‘hello’]	✓	✓
[1, 0, 2, 0, ‘hello’, ‘’, []]		

Q. 24

Question 24

Time taken: 2m 5s

Which of the following has the greatest wavelengths?

Response:

OPTIONS	RESPONSE	ANSWER
X- rays		
Cosmic rays		
Radio waves	✓	✓
Gamma rays		

Q. 25

Question 25

Time taken: 3m 37s

GPR operates most like:

Response:

OPTIONS	RESPONSE	ANSWER
the sonar on a ship		
an electromagnet		
airport radar	✓	✓
a large stethoscope		

Q. 26

Question 26

Time taken: 7m 25s

Which of the following CANNOT be detected solely through the use of GPR?

Response:

OPTIONS	RESPONSE	ANSWER
The location of several oil drums		
A large underground channel or fissure		
Distinct soil layers		
The presence of a specific toxic chemical	✓	✓

Q. 27

Question 27

Time taken: 2m 9s

A reflection of the GPR signal occurs at an interface between layers of two different materials because:

Response:

OPTIONS	RESPONSE	ANSWER
the two materials have different densities		
the two materials are different colors		
the two materials are at different depths		
the two materials have different electrical conductivities	✓	✓

Q. 28

Question 28

Time taken: 42s

The type of systems which are characterized by input and the output quantized at certain levels are called as

Response:

OPTIONS	RESPONSE	ANSWER
analog		
discrete	✓	✓
continuous		
causal		

Q. 29

Question 29

Time taken: 7m 19s

All causal systems must have the component of

Response:

OPTIONS	RESPONSE	ANSWER
memory	✓	✓
time invariance		
stability		
linearity		

Q. 30

Question 30

Time taken: 20m 24s

Which among the following are the stable discrete time systems?

1. y(n) = x(4n)
2. y(n) = x(-n)
3. y(n) = ax(n) + 8
4. y(n) = cos x(n)

Response:

OPTIONS	RESPONSE	ANSWER
1 & 3		✓
2 & 4		
1, 3 & 4		
1, 2, 3 & 4	✓	

Q. 31

Question 31

Time taken: 1m 22s

The electric field and magnetic field of a radio wave are

Response:

OPTIONS	RESPONSE	ANSWER
a) Perpendicular to each other		
b) Perpendicular to the direction of propagation		
c) Both a and b	✓	✓
d) None of the above		

Q. 32

Question 32

Time taken: 2m 36s

High-frequency long-distance propagation mostly depends on

Response:

OPTIONS	RESPONSE	ANSWER
Ionospheric reflection	✓	✓
Tropospheric reflection		
Ground reflection		
Inverted reflection		

Q. 33

Question 33

Time taken: 3m 8s

Load balancing is

Response:

OPTIONS	RESPONSE	ANSWER
Involves only those tasks executing a communication operation		
It exists between program statements when the order of statement execution affects the results of the program.		
It refers to the practice of distributing work among tasks so that all tasks are kept busy all of the time. It can be considered as minimization of task idle time.	✓	✓
None of these		

Q. 34

Question 34

Time taken: 3m 29s

Multimode graded index fibers have overall buffer jackets same as multimode step index fibers but have core diameters _____

Response:

OPTIONS	RESPONSE	ANSWER
Larger than multimode step index fibers	✓	
Smaller than multimode step index fibers		✓
Same as that of multimode step index fibers		
Smaller than single mode step index fibers		

Q. 35

Question 35

Time taken: 2m 53s

The fibers mostly not used nowadays for optical fiber communication system are _____

Response:

OPTIONS	RESPONSE	ANSWER
Single mode fibers	✓	✓
Multimode step fibers		
Coaxial cables		
Multimode graded index fibers		

Q. 36

Question 36

Time taken: 4m 37s

Range-free localization trying to find _____ values distances or angles.

Response:

OPTIONS	RESPONSE	ANSWER
exact		
approximate	✓	✓
actual		
none of these		

Q. 37

Question 37

Time taken: 39s

Router device sends and receive_____signals in a wireless network.

Response:

OPTIONS	RESPONSE	ANSWER
radio	✓	✓
digital		
optical		
None		

Q. 38

Question 38

Time taken: 4m 23s

Which technique uses spot beam antennas to divide the area covered by the satellite into smaller segments?

Response:

OPTIONS	RESPONSE	ANSWER
Spatial isolation	✓	✓
Frequency reuse		
Multiplexing		
Modulation		

Q. 39

Question 39

Time taken: 1m 54s

Spatial-division multiple access (SDMA) depends on satellite location and not frequency.

Response:

OPTIONS	RESPONSE	ANSWER
TRUE		✓
FALSE	✓	

Q. 40

Question 40

Time taken: 5m 41s

Which among the following algorithms are used in Supervised Machine learning? (Multiple correct options are possible)

Response:

OPTIONS	RESPONSE	ANSWER
Linear neural networks	✓	✓
Logistic regression	✓	✓
K-Nearest Neighbours		
Long short-term memory	✓	✓

Test Log

16th Mar 2024

07:01 PM	Started the test with Section #1
07:01 PM	Candidate gave us right to the following feeds - camera : HP TrueVision FHD RGB-IR (064e:3401) - microphone : Default - Microphone Array (Realtek High Definition Audio(SST))
07:01 PM	Candidate Looking Away from Screen
07:05 PM	Candidate Looking Away from Screen
07:06 PM	Away from test window for 01 min
07:08 PM	Candidate Looking Away from Screen
07:09 PM	Away from test window
07:10 PM	Candidate Looking Away from Screen
07:10 PM	Away from test window
07:12 PM	Candidate Looking Away from Screen
07:13 PM	Away from test window for 01 min
07:15 PM	Away from test window
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07:26 PM	Candidate Looking Away from Screen
07:27 PM	Away from test window
07:28 PM	Candidate Looking Away from Screen
07:30 PM	Candidate Looking Away from Screen
07:31 PM	Candidate Looking Away from Screen
07:31 PM	Away from test window for 02 mins
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07:34 PM	Candidate Looking Away from Screen

07:35 PM	Away from test window for 01 min
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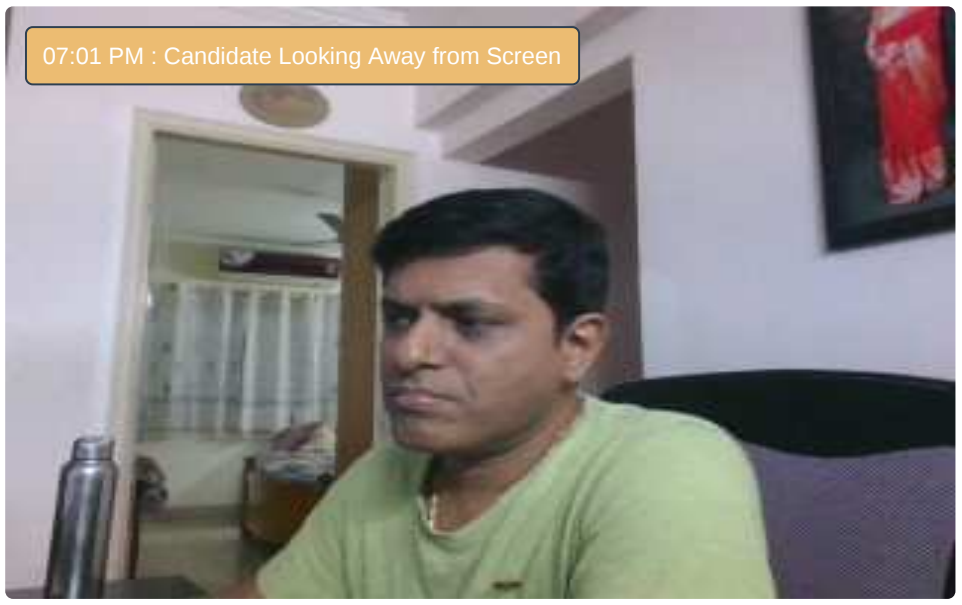
09:10 PM	Candidate Looking Away from Screen
09:11 PM	Away from test window for 01 min
09:13 PM	Candidate Looking Away from Screen
09:14 PM	Candidate Looking Away from Screen
09:16 PM	Away from test window for 03 mins
09:16 PM	Finished the test

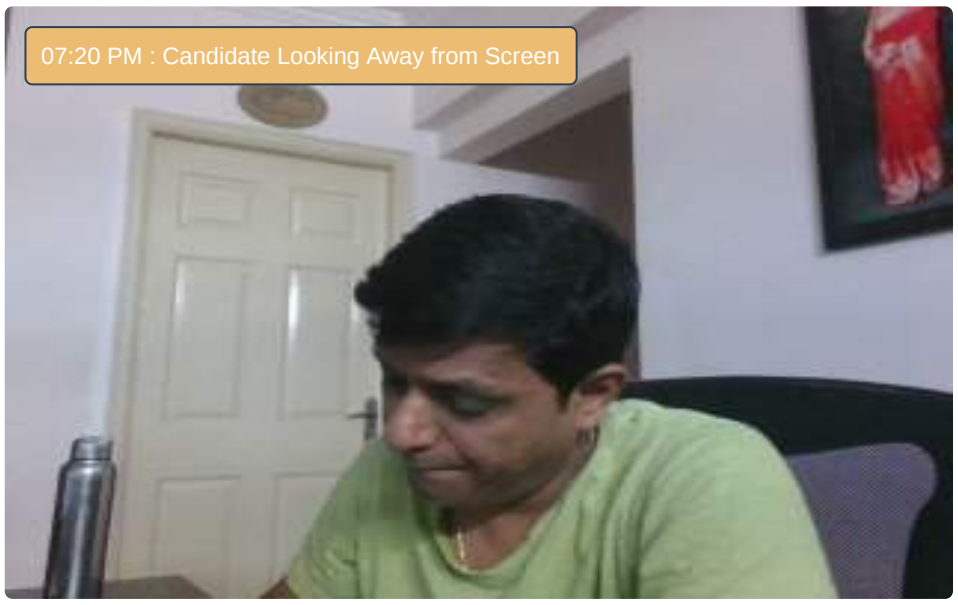
Credibility Index: LOW

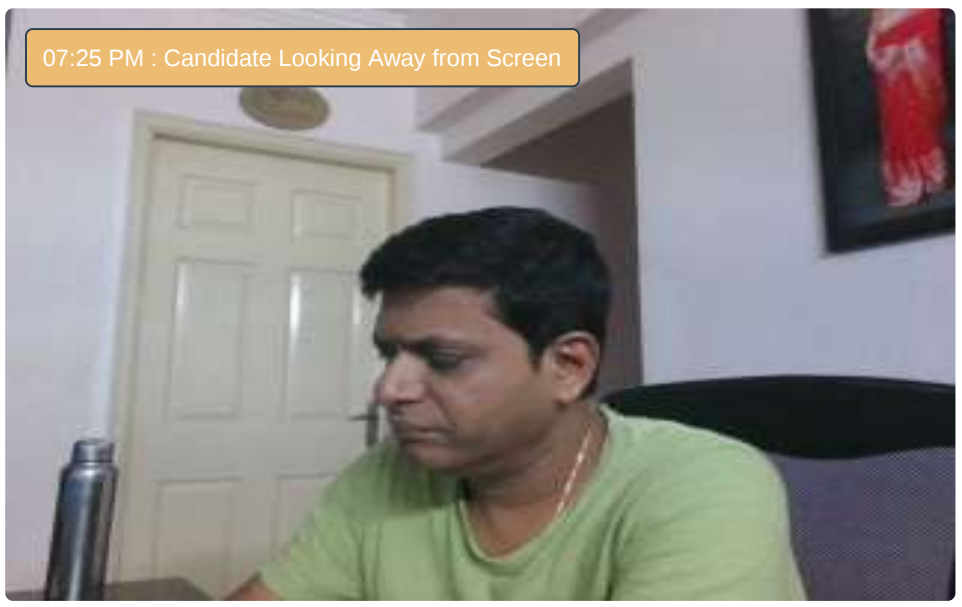
Profile Picture Snapshot

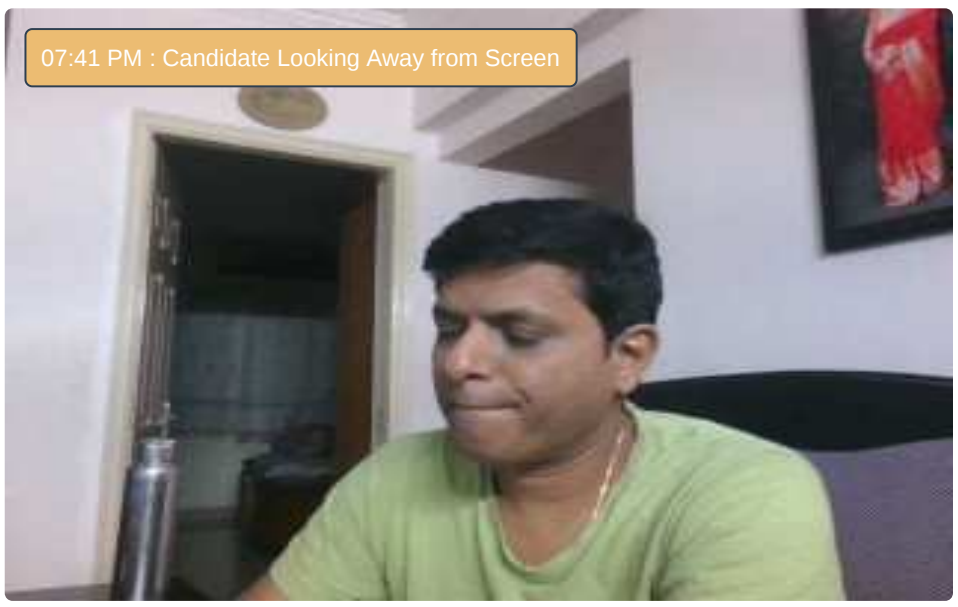
Identity Card Snapshot

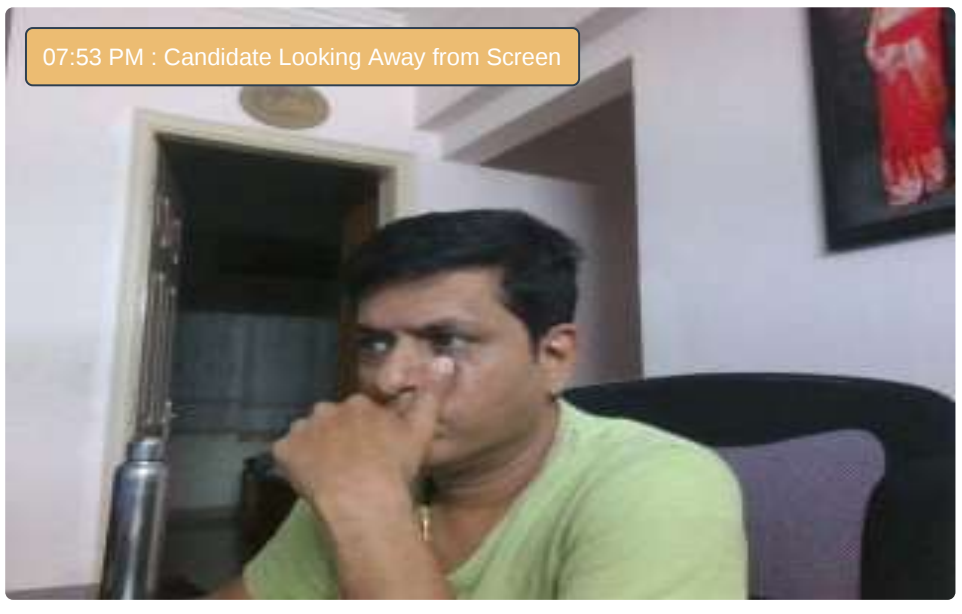
Images of Test-Taker

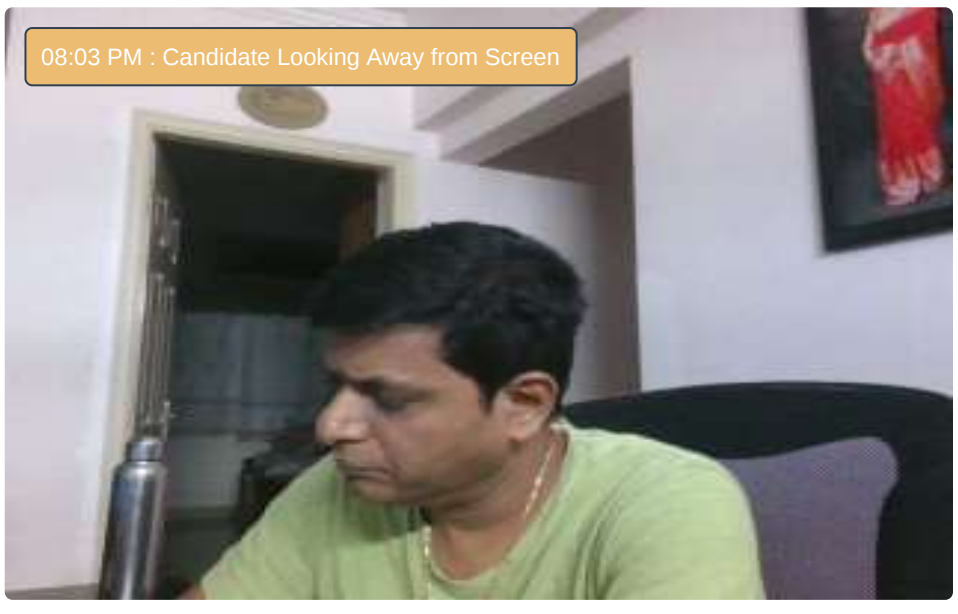


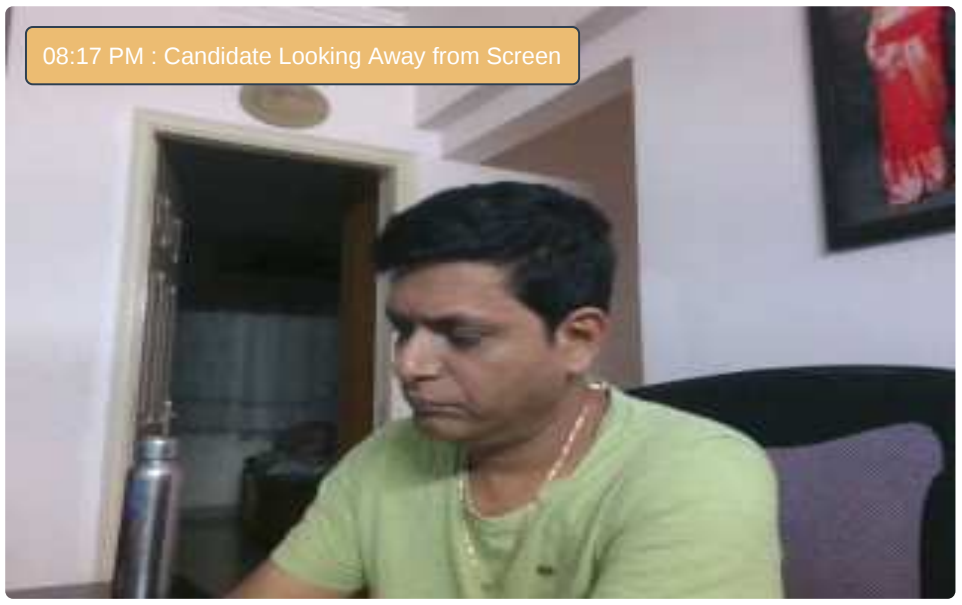


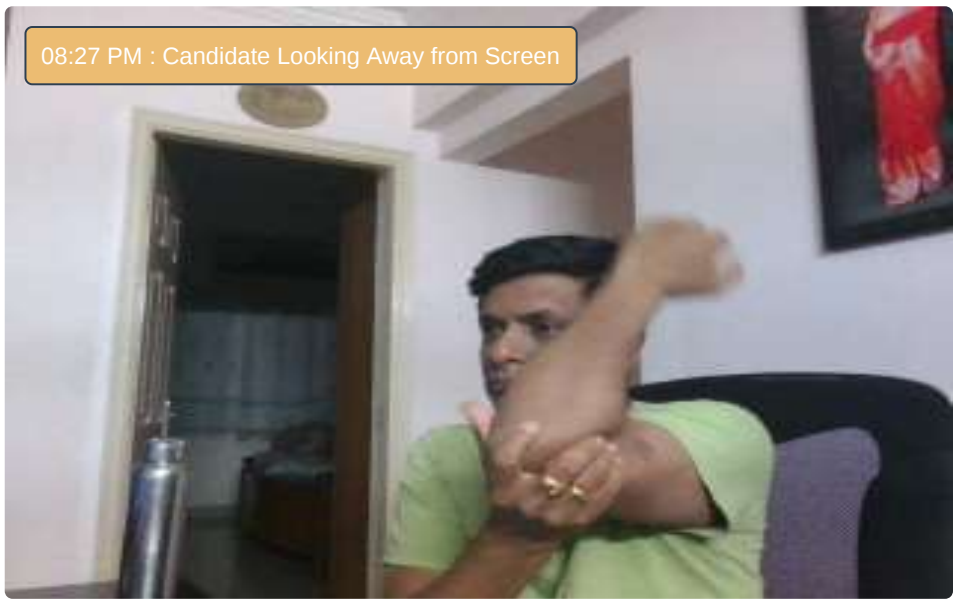


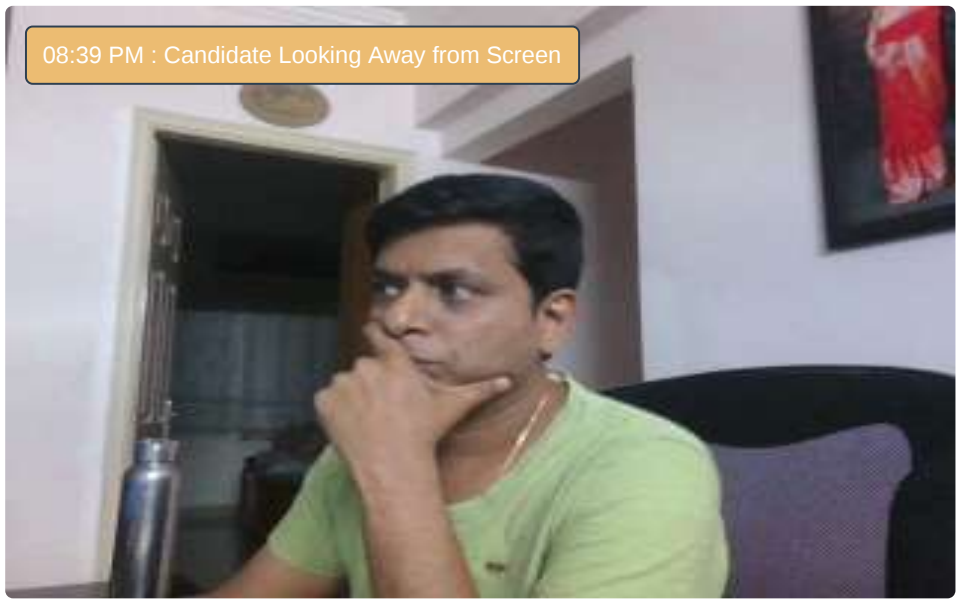








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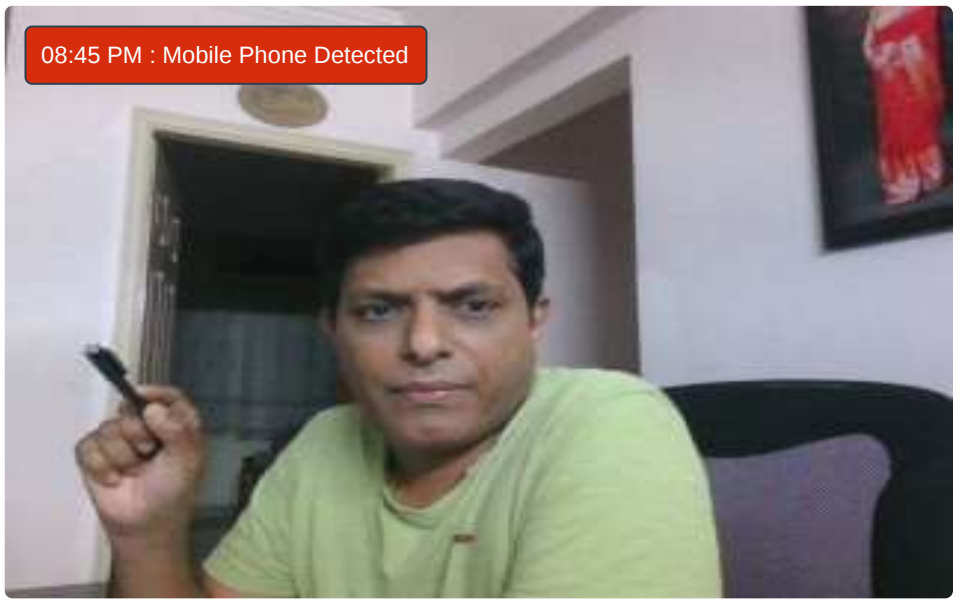
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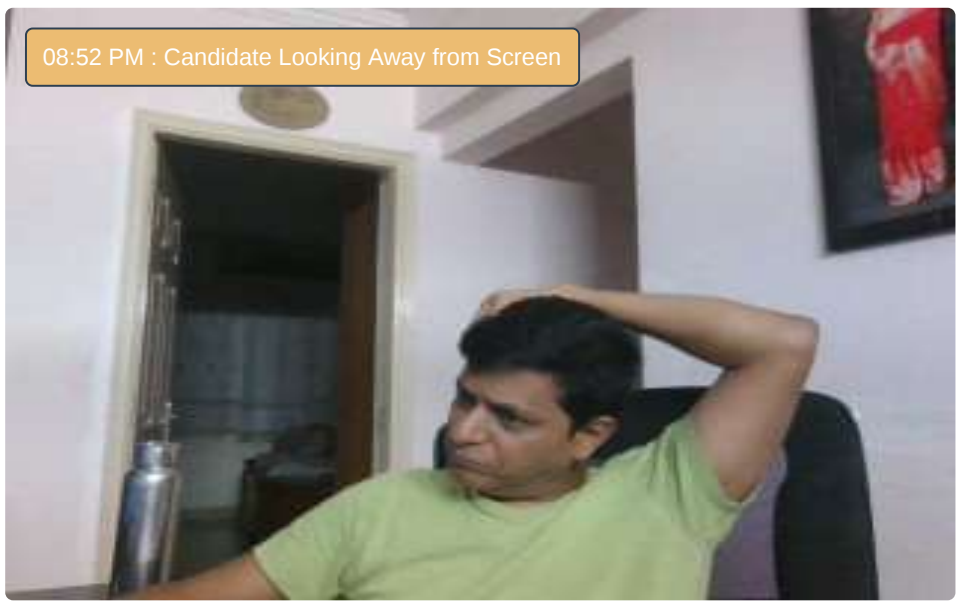
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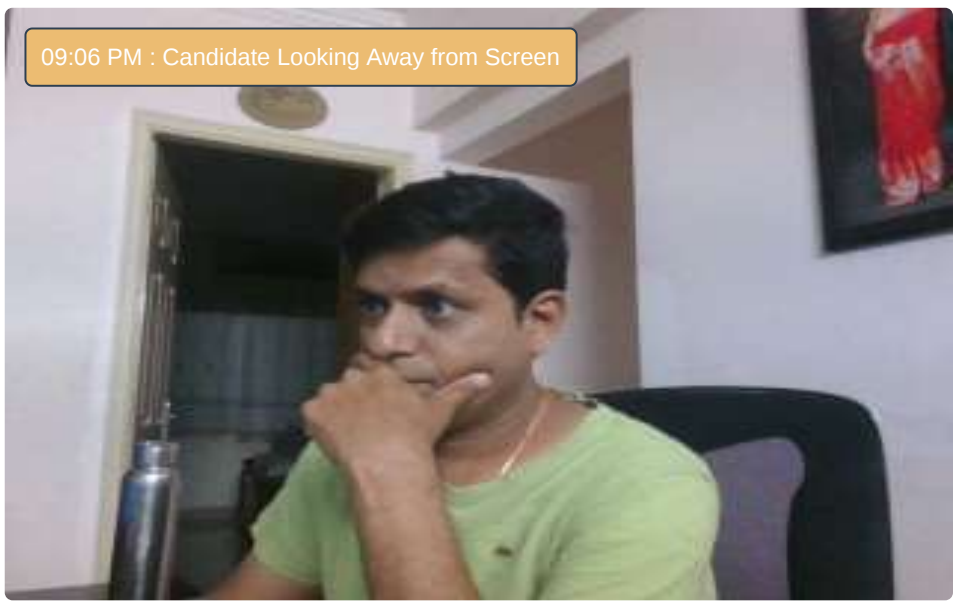
09:06 PM : Candidate Looking Away from Screen

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