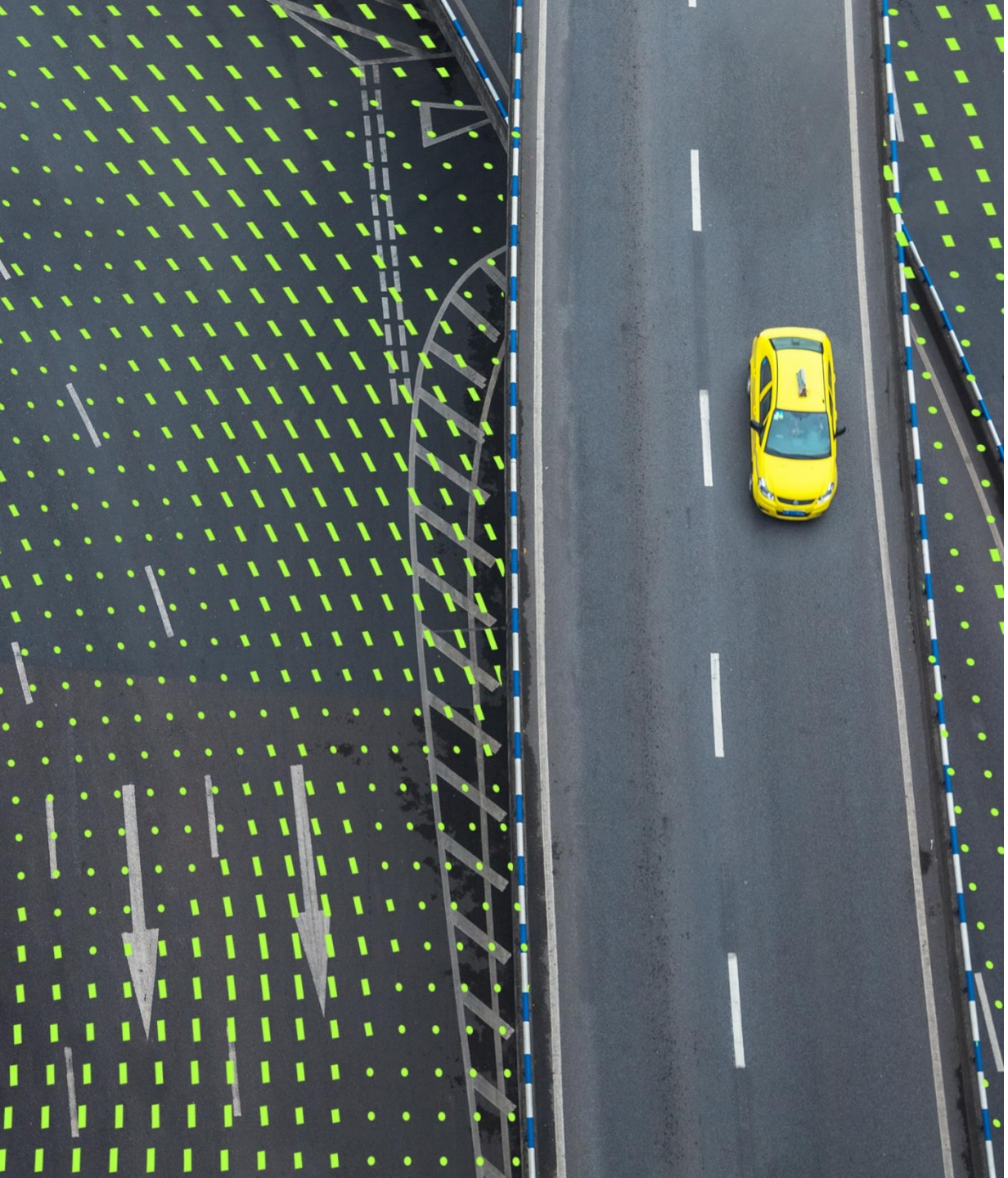
KPIT

Instructions for KPIT's Fresher Hiring

19th and 20th June 2021

About the Registration Process and the Test



About the Registration Process and the Test

- Job Description and Eligibility
- Registration Process in TalentOjo
- Overall Test Structure and Three-stage Selection Process
  - Day 1: Sat, 19 June 21 (Open to all candidates who register)
  - Day 2: Sun, 20 June 21 (For short-listed candidates from Day-1)
  - Day 3: Wed, 23 June 21 (For short-listed candidates from Day-2)
- Syllabus for the Tests
- Instructions / Rules for the Exam
- About the Assessment Platform, Mercer-Mettl
- Key Takeaways
- Contact Details

Job Description and Eligibility

Job Description

Upon joining, you will undertake jobs of the following nature (depending upon the department you are assigned to):

- Work on projects in the domains of Autonomous Driving, Connected Vehicles, Mobility, Power-train, Mechanical Engineering, etc.
- Analyze the requirements given for the projects.
- Design or understand algorithms / concepts and convert into a mathematical model.
- Undertake programming in C, C++, MATLAB®, Simulink or Python.
- Testing of code and Simulink models (Verification and Validation, Hardware-in-the-loop testing).
- Optimization and porting of code onto microprocessors and microcontrollers

Joining CTC and Five-year Accelerated Career Progression Plan

- Cost to Company (CTC) upon Joining:
  - 3.6 Lac per year (LPA).
  - Please note that there is a two-year bond.
- If you
  - Perform excellent in our Genesis program (KPIT's Graduate Training Program for Freshers); and
  - You are consistently in top 5%,
  - Your CTC can grow up to approx. 10 LPA in five years (**nearly a three-time jump in five years!**)
- Other Benefits (may change / improve)
  - Medical Insurance for Employees- 6 Lac
  - Parental Health Insurance – 5 Lac for parents and in-laws (payment basis, 50% cheaper than market)
  - Personal Accident Insurance – 20 Lac
  - Free Annual Health check for employees and their family members (parents, in-laws, spouse)

Eligibility

- Bachelors of Engineering:
  - Electronics and Communication / Electrical and Electronics / Electronics and Telecommunication / Instrumentation / Electrical
    (will be called as “Circuit Branches” in this presentation)
  - Computer Science / Information Technology
- Academic Qualifications (one of the three tracks below):
  - 10th (70%) → 12th (70%) → B.E. or B.Tech (60% aggregate or equivalent in case of CGPA)
  - 10th (70%) → Diploma (70%) → B.E. or B.Tech (60% aggregate or equivalent in case of CGPA)
  - 10th (70%) → 12th (70%) → Diploma (70%) → B.E or B.Tech. (60% aggregate or equivalent in case of CGPA) – **In this case you are requested to enter your 12th Marks in the registration form**
  - No Year gap during the graduation
  - No Active backlog
  - Students should have completed their graduation in 2020

Important Action

You are requested to fill in below survey form to plan a smooth recruitment process.

https://forms.office.com/r/LmZ3RqwwWH

Registration Process in Talent Ojo

Registration Process in KPIT's TalentOjo Portal

- Please click on the below link to register for the drive
  https://talentojo-kel.kpit.com/tojo/app/job-apply/#/Campus/37084/77

- Request you to kindly login to TalentOjo Portal by using below login credential:
  - User ID: personal email-id
  - Password: Create a new password using the following process.
    - You can reset it by clicking on 'forgot password' link.
    - Then follow the instructions to create a new password.

Registration Process in KPIT's TalentOjo Portal

University / College Registration Number

Please review the information carefully before submitting.

FILL DETAILS TO APPLY

Fields marked * are mandatory.

INSTITUTE ID NUMBER *

SELECT COLLEGE *

Select College

PERSONAL INFORMATION

FIRST NAME *

MIDDLE NAME

LAST NAME *

GENDER *

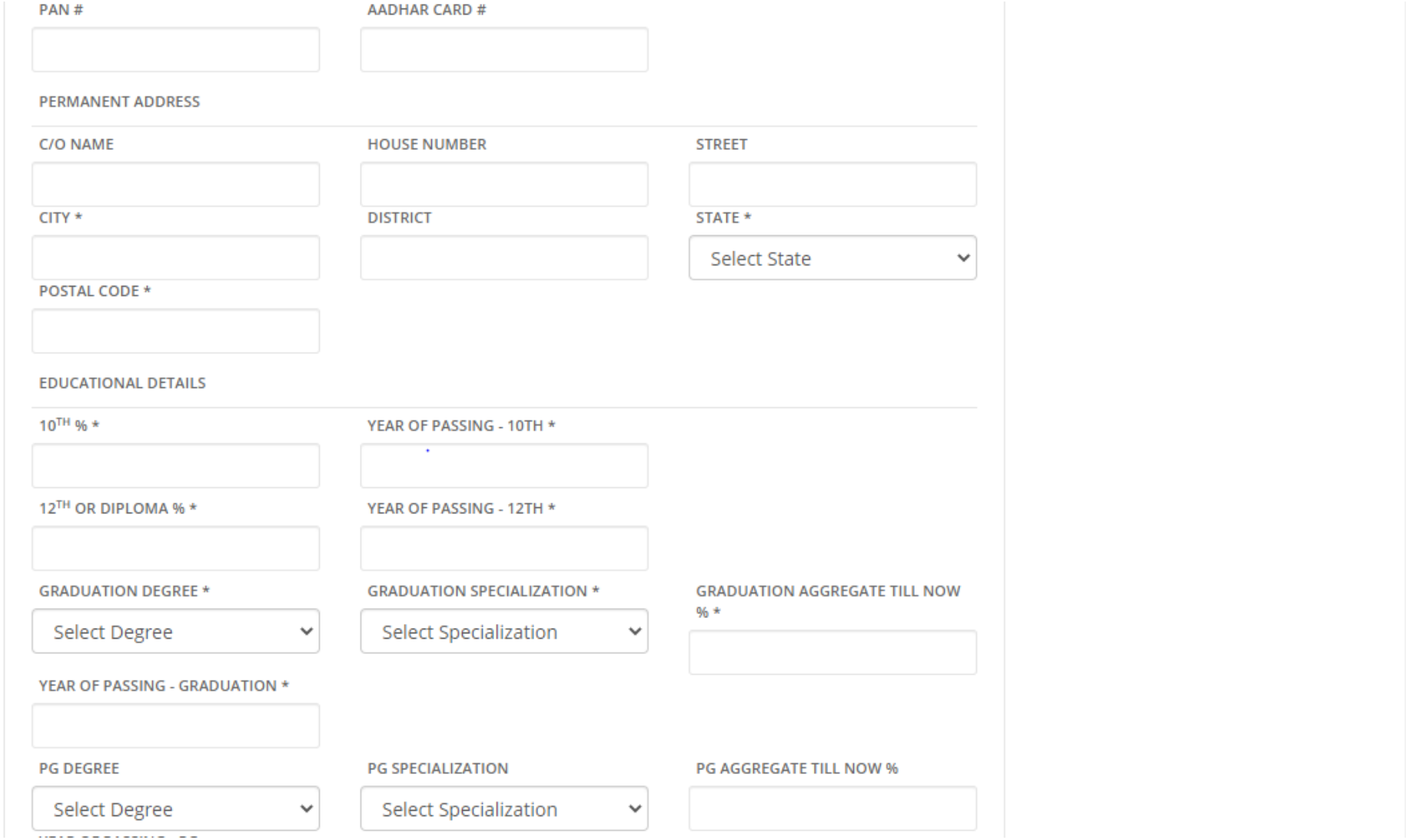
BIRTH DATE *

Select Gender

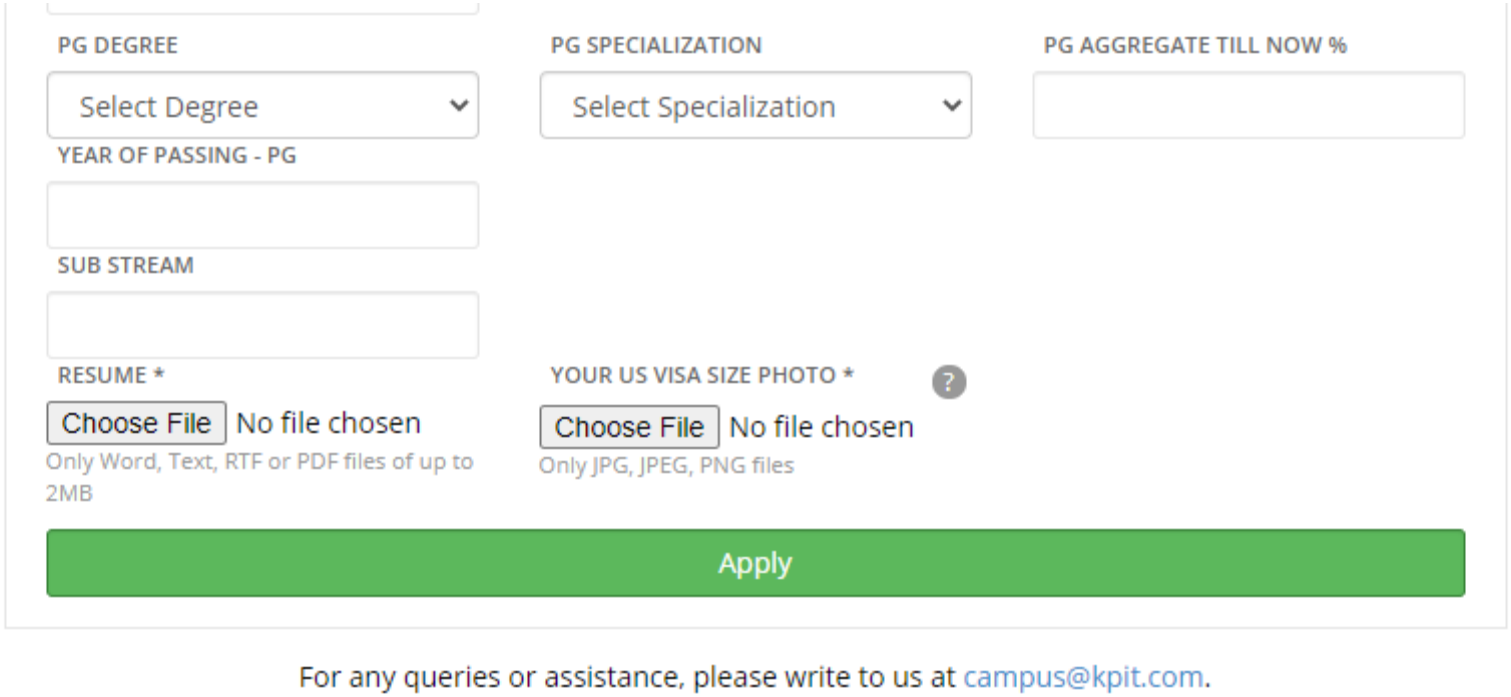
PERSONAL EMAIL ID *

MOBILE NUMBER *

Registration Process in KPIT's TalentOjo Portal



Registration Process in KPIT's TalentOjo Portal



Test Structure

Test structure

Day 1: 19 June 2021
(2.5 hours in total for both sections)
9:00 AM to 11:30 AM – you are allowed to log into the test from 9:00 AM to 9:20 AM only

Day 1: Section A

1. Aptitude
2. Engineering Mathematics
3. Professional skills and Knowledge of English Language
4. Basics of C Language
5. Algorithmic thinking

Day 1: Section B
Domain specific questions
(Attempt any one section from the following as per your expertise)

1. Circuit Branches
2. Computer/ IT Engineering
3. Electrical Engineering

Shortlisted candidates

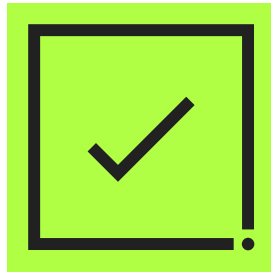
Day 2: 20 June 2021
(3 hours)
09:00 AM to 12:00 PM

Day 2: Coding round and domain specific questions
Track 1:Programming in C and Embedded C
Track 2: Programming in C++
Track 3: MATLAB, Simulink and C Programming

Shortlisted candidates

Day 3: 22 June 2021
(1 hour)

Behavioral Assessment
Please keep 09:00 AM to 11:00 AM free.
No preparation is required by the candidates.



Offer letter to the selected candidates will be issued 10th July 2021

Syllabus

Day 1: Section A

What should you expect in this section?

This is common for all the participants

1. Aptitude
2. Engineering Mathematics
3. Professional Skills and Knowledge of English Language
4. Basics of C Language
5. Algorithmic Thinking

Example Problem on Aptitude

1. The percentage profit earned by selling an item for Rs. 1920 is equal to the percentage loss incurred by selling the same item for Rs. 1280. At what price should the item be sold to make 25% profit?

A. Insufficient Data

B. Rs. 3000

C. **Rs. 2000**

D. Rs. 2200

2. The average age of a class of 22 students is 21 years. The average increased by 1 when the teacher's age also included. What is the age of the teacher?

A. 48

B. 45

C. 43

D. **44**

Example Problem on Engineering Mathematics

1. The lowest eigen value of the matrix $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$

A. 5

B. 2

C. 1

D. 4

2. Solve $\lim_{x \to \infty} \frac{1 - \cos(x)}{x^2}$

A. 0.25

B. 0.5

C. 1

D. 2

Example Problem on Professional Skills and Knowledge of English Language

1. Select the option in which both the columns are exactly same:

A.	KPIT Technology Ltd	KPIT Technologies Ltd
B.	Larsen and Tuobro Ltd	Larsen and Toubro Ltd
C.	Tata Consultancy Service	Tata Consultancy Services
D.	**Google Inc. Ltd.**	**Google Inc. Ltd.**

2. I ___ watching TV when Paul and Simon arrived.

A. were

B. is

C. was

D. am

Example Problem on Basics of C Language

1. In statement "char *const q = "KPIT" ;" q is a:

A. pointer to constant

B. constant pointer

C. const pointer to constant

2. A structure can be nested inside another structure. This statement is:

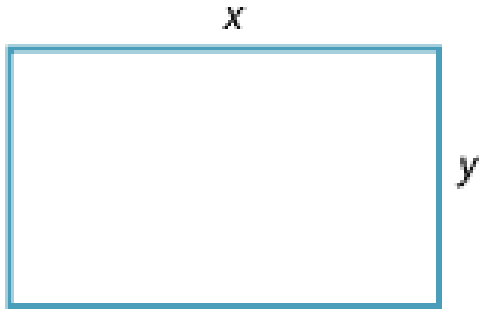
A. True

B. False

Example Problem on Algorithmic Thinking

For the following problem, what are the correct steps to obtain the right solution?

Find the dimensions of a rectangle with perimeter 1000 meters so that the area of the rectangle is a maximum.



A. Find the derivative of the equation: $A(x) = 500\,x\, - x^2$

   You will get max(A) at $\frac{dA}{dx} = 0$. and solve the equation.

B. Find the double derivative of the equation: $A(x) = 500\,x\, - x^2$

C. Find the relation between x and y i.e., $1000 = 2x + 2y$. Hence, $y = 500 - x$

D. Find the equation for area. $A(x) = xy = x(500 - x) = 500x - x^2$

E. Apply constrains $0 <= x <= 500$

- ❑ a) C, D, A
- ❑ b) A, B, C, D
- ❑ c) E, B, D
- ❑ d) E, A ,B, C, D

Syllabus for Day 1 – Section B (Only one Sub-section to be attempted)

Day 1: Section B

Circuit Branches

You should expect Multiple Choice Questions on these topics / subjects.

CONTROL SYSTEMS
SIGNAL PROCESSING

DIGITAL
ELECTRONICS

ANALOG ELECTRONICS
CIRCUIT THEORY

COMPUTER
ORGANIZATION

Example Problem for Circuit Branches

1. Which of the following transfer function will have the greatest maximum overshoot?

A. 9/(s2+2s+9)

B. 16/(s2+2s+16)

C. 25/(s2+2s+25)

D. **36/(s2+2s+36)**

2. Simplify Y = AB’ + (A’ + B)C.

A. **AB’ + C**

B. AB + AC

C. A’B + AC’

D. AB + A

Day 1: Section B

Computer/ IT Engineering

You should expect Multiple Choice Questions on these topics / subjects.

DATA STRUCTURES

COMPUTER FUNDAMENTALS AND ARCHITECTURE

OBJECT-ORIENTED CONCEPTS

DATABASE

Example Problem for CS/ IT Engineering

1. Which of the following recursive formula can be used to find the factorial of a number?

A. fact(n) = n * fact(n)

B. fact(n) = n * fact(n+1)

C. **fact(n) = n * fact(n-1)**

D. fact(n) = n * fact(1)

2. Which among the following best defines abstraction?

A. Hiding the implementation

B. Showing the important data

C. Hiding the important data

D. **Hiding the implementation and showing only the features**

Day 1: Section B

Electrical Engineering

You should expect Multiple Choice Questions on these topics / subjects.

MOTORS AND GENERATOR CONSTRUCTION

POWER ELECTRONICS

CONTROL SYSTEMS

CIRCUIT THEORY

Example Problem for Electrical Engineering

1. If the terminal voltage of 220 V dc generator having armature resistance of 1 Ω. The induced emf produced is 200 V. The armature current for the above machine is?

A. 20 A

B. -20 A

C. -10 A

D. 10 A

2. Kirchhoff's Current law is based on the law of conservation of

A. energy

B. momentum

C. mass

D. charge

Day 2 - Track 1: Programming in C and Embedded C

You should expect the following sections

- Section 1: MCQ of C: 25 questions (approx. 35 min)
- Section 2: Five code snippets in Embedded Software Development (approx. 35 min)
- Section 3: MCQ of Embedded C: 25 questions (approx. 35 min)
- Section 4: Two Coding assignments in C (approx. 75 min)

Example Problem in Track 1

Identify the speed-optimized code out of the below code snippets.

Code snippet #1:

```
#include <stdio.h>
int main(void)
{
int data[1000];
int x = 1, y = 5, c = 25, d = 7;
for (int i = 0; i < 1000; ++i) {
data[i] = (((c % d) * x / y) % d) * i;
}
return 0;
}
```

Code snippet #2:

```
#include <stdio.h>
int main(void)
{
int data[1000];
int x = 1, y = 5, c = 25, d = 7;
int value = (((c % d) * x / y) % d);
for (int i = 0; i < 1000; ++i) {
data[i] = value * i;
}
return 0;
}
```

A. Code snippet #1 and code snippet 2 both leads to speed optimized code

B. Code snippet #1 leads to speed optimized code

C. Code snippet #2 leads to speed optimized code

D. Code snippet #1 and code snippet #2 will have same execution times in similar environment

Day 2 - Track 2: Programming in C++

You should expect the following sections

- Section 1: MCQ of C++ and OOPS Concepts: 60 questions (75 min)
- Section 2: One Coding challenge in C++ (75 min)

Example Problem in Track 2

Predict the output of
given code snippet?

Code Snippet question for CPP:

```
#include <iostream>
using namespace std;
int i;
class A
{
public:
~A()
{
i=10;
}
};
int foo()
{
i=3;
A ob;
return i;
}
int main()
{
cout << foo() << endl;
return 0;
}
};
```

A. 0
B. 3
C. 10
D. None of the above

Day 2 - Track 3: MATLAB, Simulink and C Programming

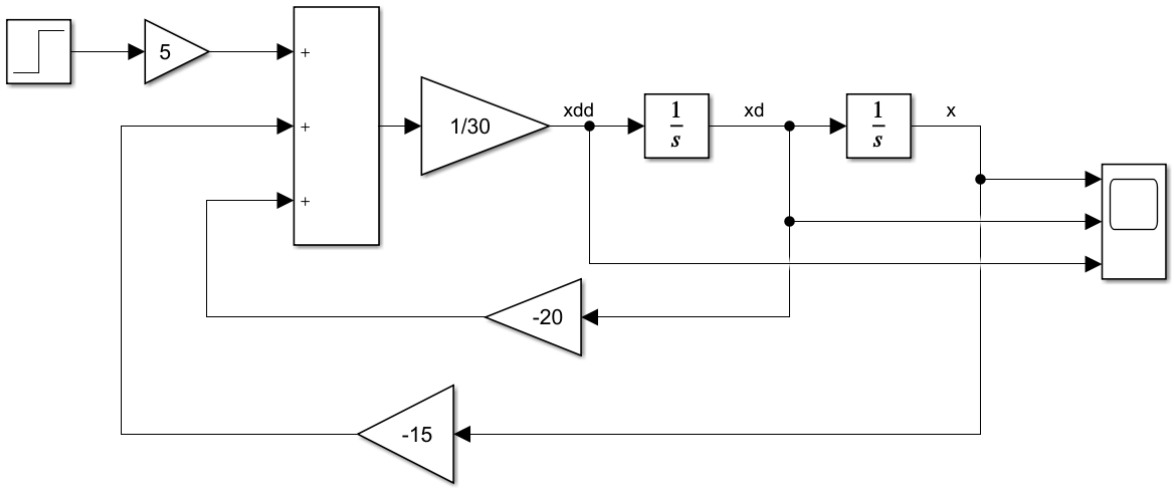
You should expect the following sections

- Section 1: MCQ of C: 15 questions (15 min)
- Section 2: Four code snippets in C (20 min)
- Section 3: MCQ on MATLAB (MATLAB Programming and Signal Processing): 10 questions (20 min)
- Section 4: Five code snippets in MATLAB (25 min)
- Section 5: MCQ on Simulink (Math Modelling, Control System, Stateflow and Physical Modelling with Simscape): 10 questions (45 min)
- Section 6: Two Coding assignments in C (approx. 55 min)

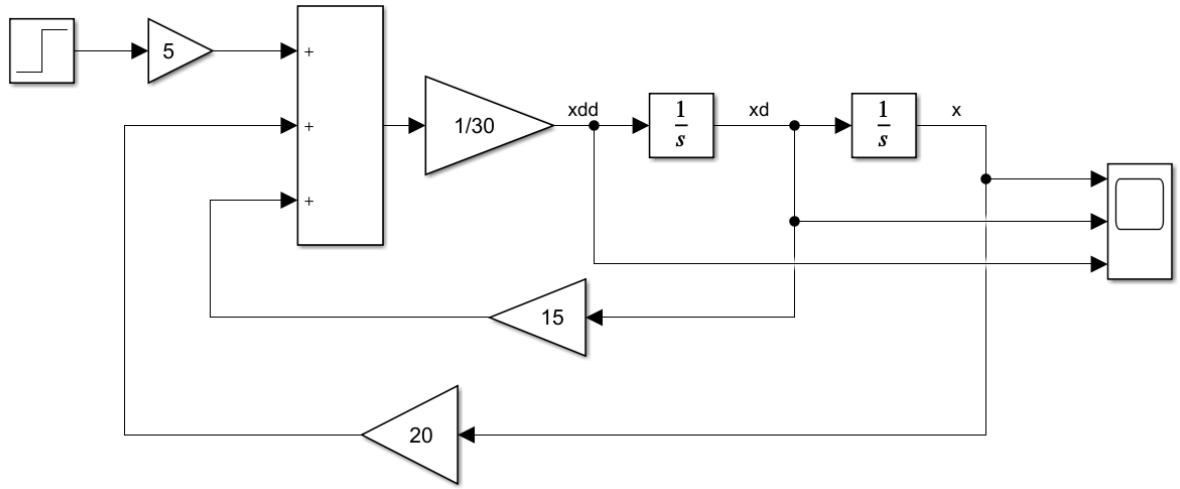
Example Problem in Track 3

What is the correct model representation in the given options for the following equation?

$$30\frac{d^2}{dt^2}x + 20\frac{d}{dt}x + 15\,x = 5 * u(t)$$



A.



B.

Resources to revise MATLAB® and Simulink® Skills

1. Please visit https://matlabacademy.mathworks.com/
2. Here you will find following Onramp courses

* Picture taken from https://matlabacademy.mathworks.com/

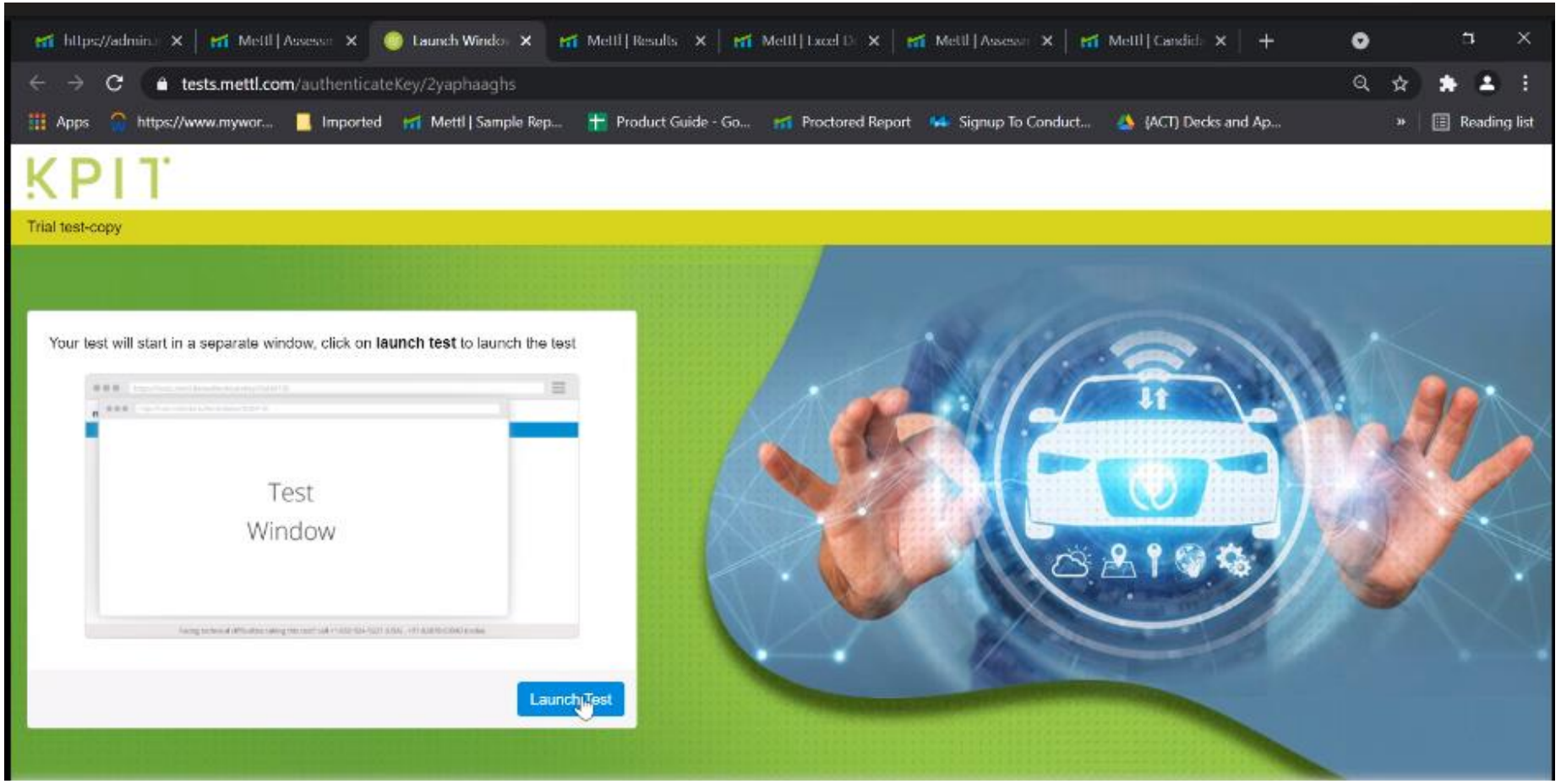
Rules for the Test
(Very Important)

How Should You Arrange Your Test Environment?

- Please ensure that your monitor / laptop is close to a wall and no one can stand behind the monitor.
- You will be asked to show the room anytime during the test. Hence …
  - Ensure that no one else is in your room during the test.
  - You should not have any digital device or textbook around you when the test is being conducted.
  - You should not keep a mobile-phone or any video-casting device around you.
- Please have a high-resolution camera mounted on the monitor. Do not change its position.
- Please do keep some rough-paper, pen and calculator with you, because many questions would require calculations.
- No water-breaks / toilet-breaks are allowed. Please, do keep some water and snacks handy.
- The test-platform shall automatically log you out if …
  - Your complete face is not visible throughout the test.
    - Please ensure that you are facing a light-source, so that your face is clearly visible. Also, there should not be any light-source behind you.
  - Someone else is talking in the room or there is some noise in the room.
  - You are wearing tinted glasses or sun-glasses.
  - You are browsing any web-site.
  - You connect any additional monitor over VGA, HDMI or Bluetooth / Wi-Fi.

About the Assessment Platform

Steps to log in to the mettl platform



If you have any challenge at this step, please contact the Campus Team, KPIT at campus@kpit.com. Please do not communicate with anyone else.

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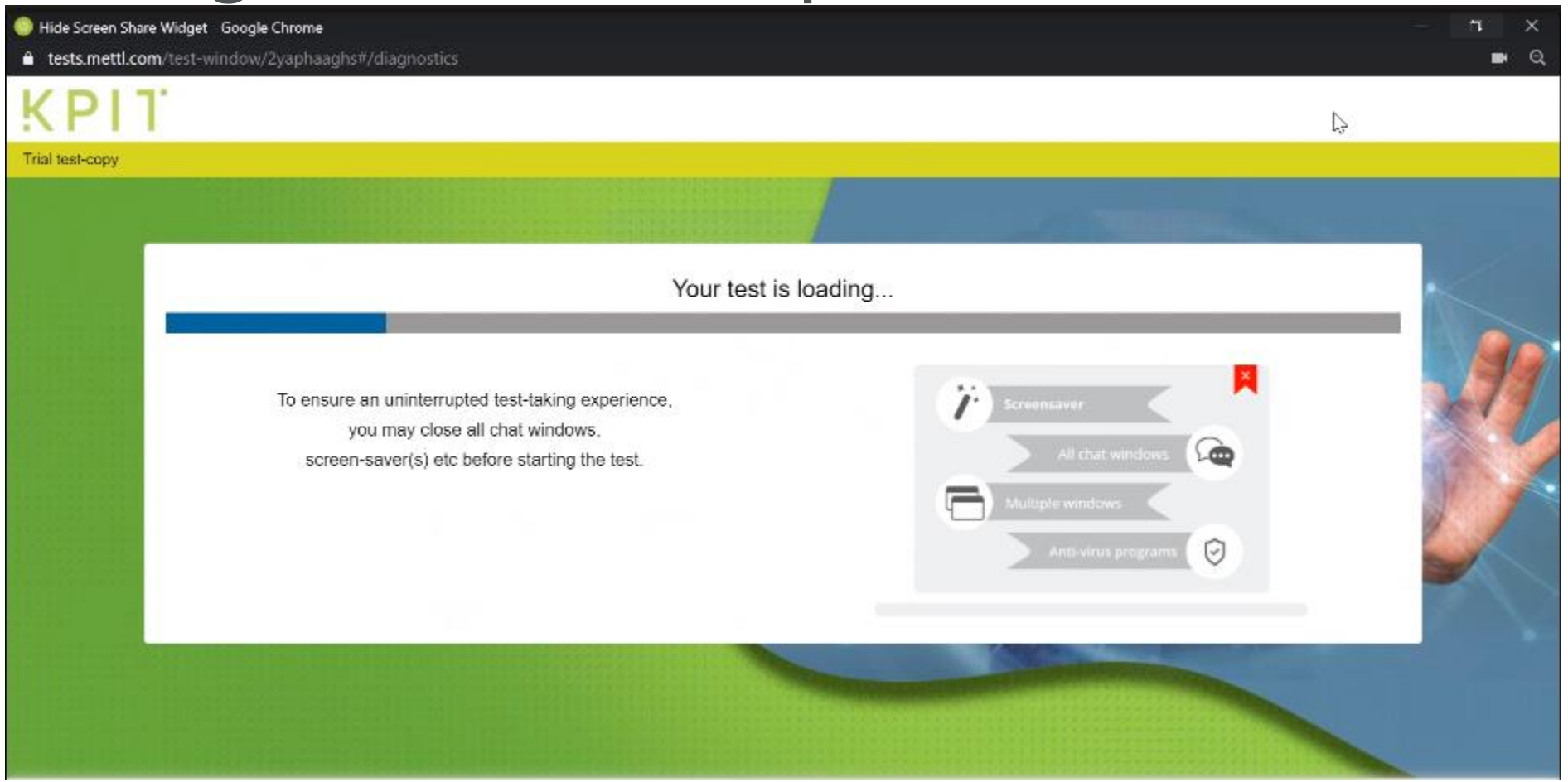

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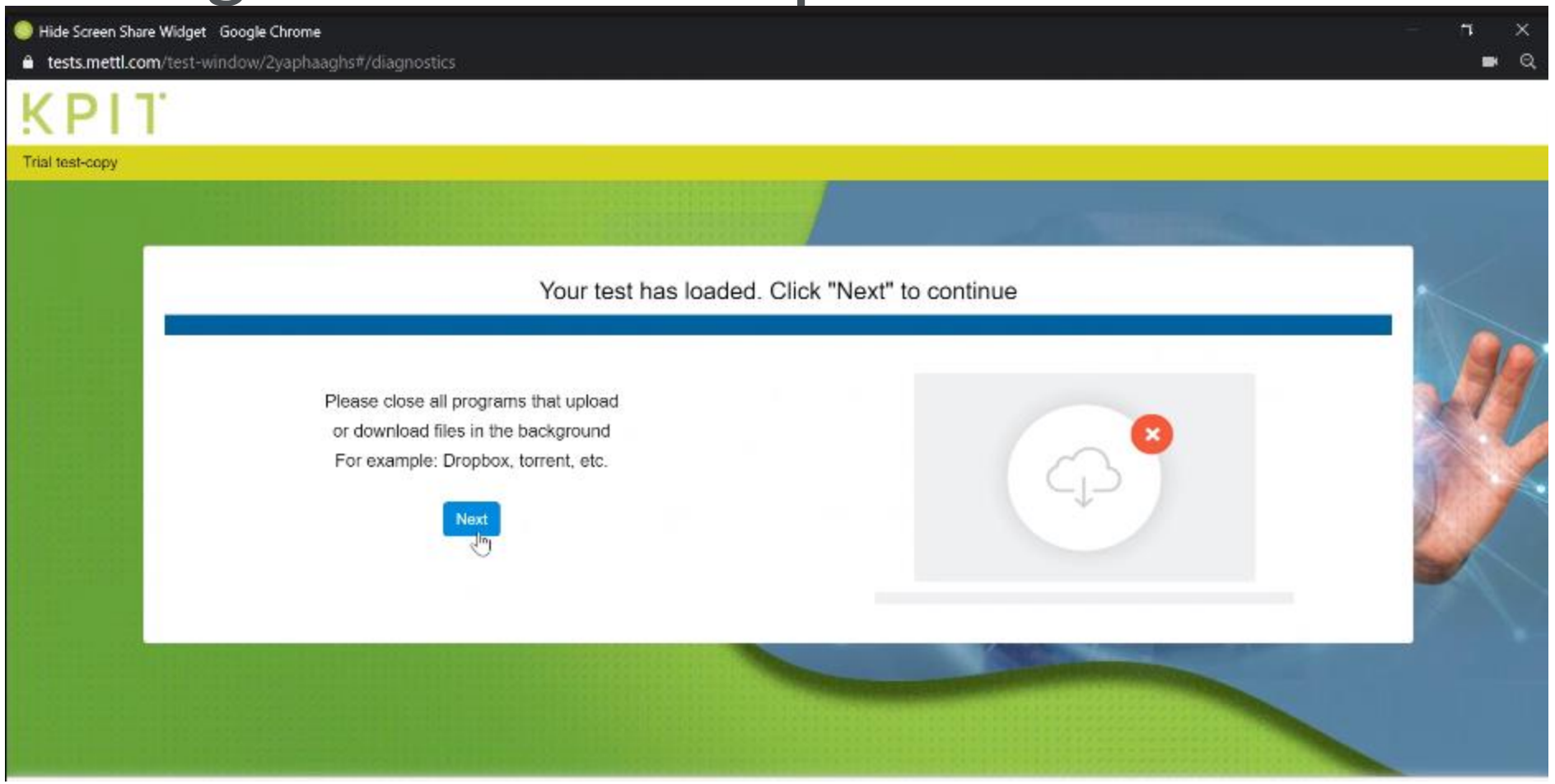

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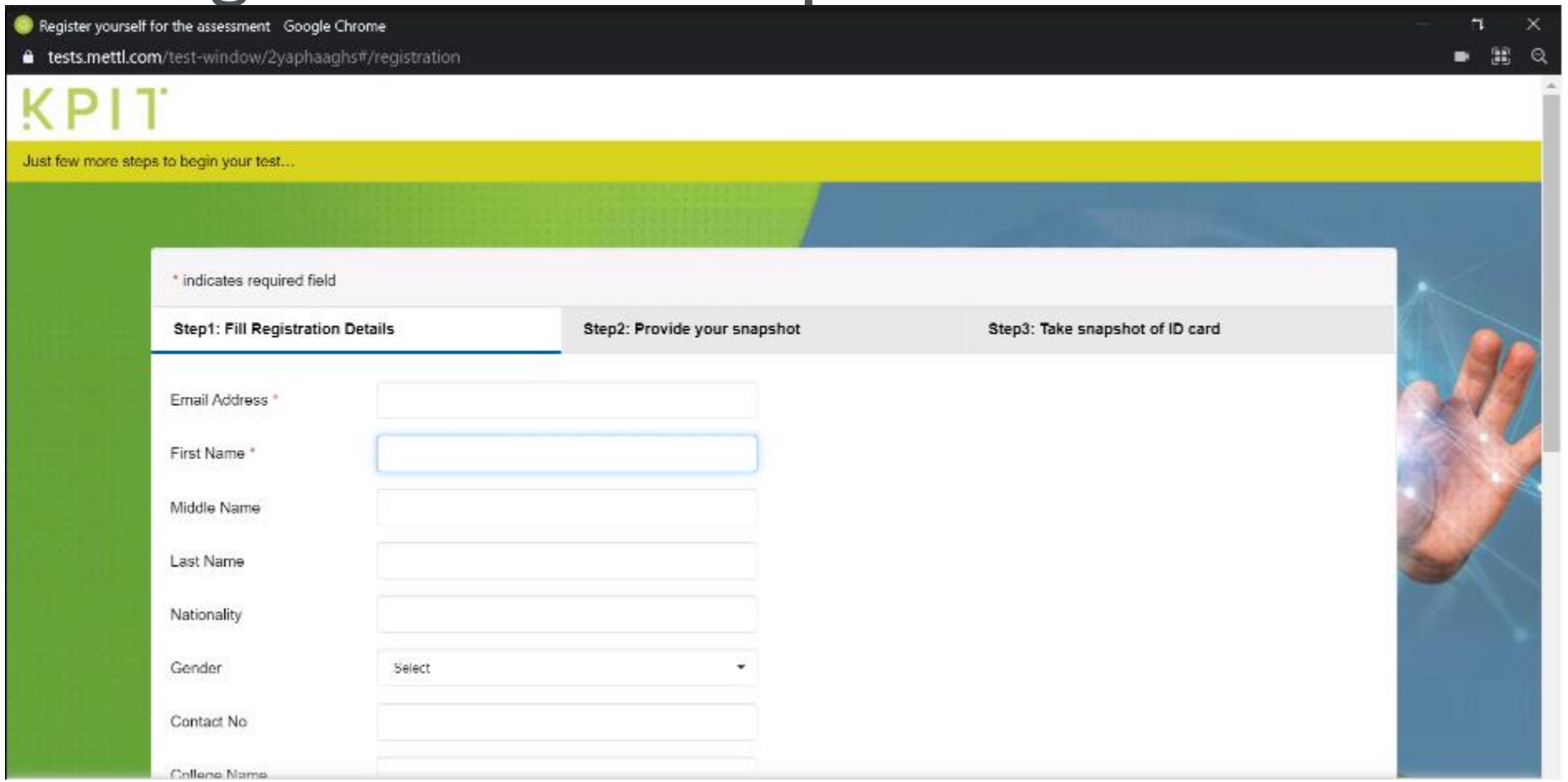

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Following details will be asked

- You email Id
  - Very Important: Please enter the same email id that you entered in the TalenOjo Registration Process
- How did you come to know about this Recruitment drive for 17 Apr?
- If someone from KPIT has referred, then please indicate his / her Employee Id
- College Name and Department
- Your choice for the Day 2 examination if you qualify Day 1
  - Track 1: Programming in C and Embedded C
  - Track 2: Programming in C++
  - Track 3: MATLAB, Simulink and C Programming
- Language proficiency in Japanese (good to have, not compulsory)

  N5, N4, N3, N3, N1 (Highest Level)
- Language proficiency in German (good to have, not compulsory)

  A1, A2, B1, B2, C1, C2 (Highest Level)

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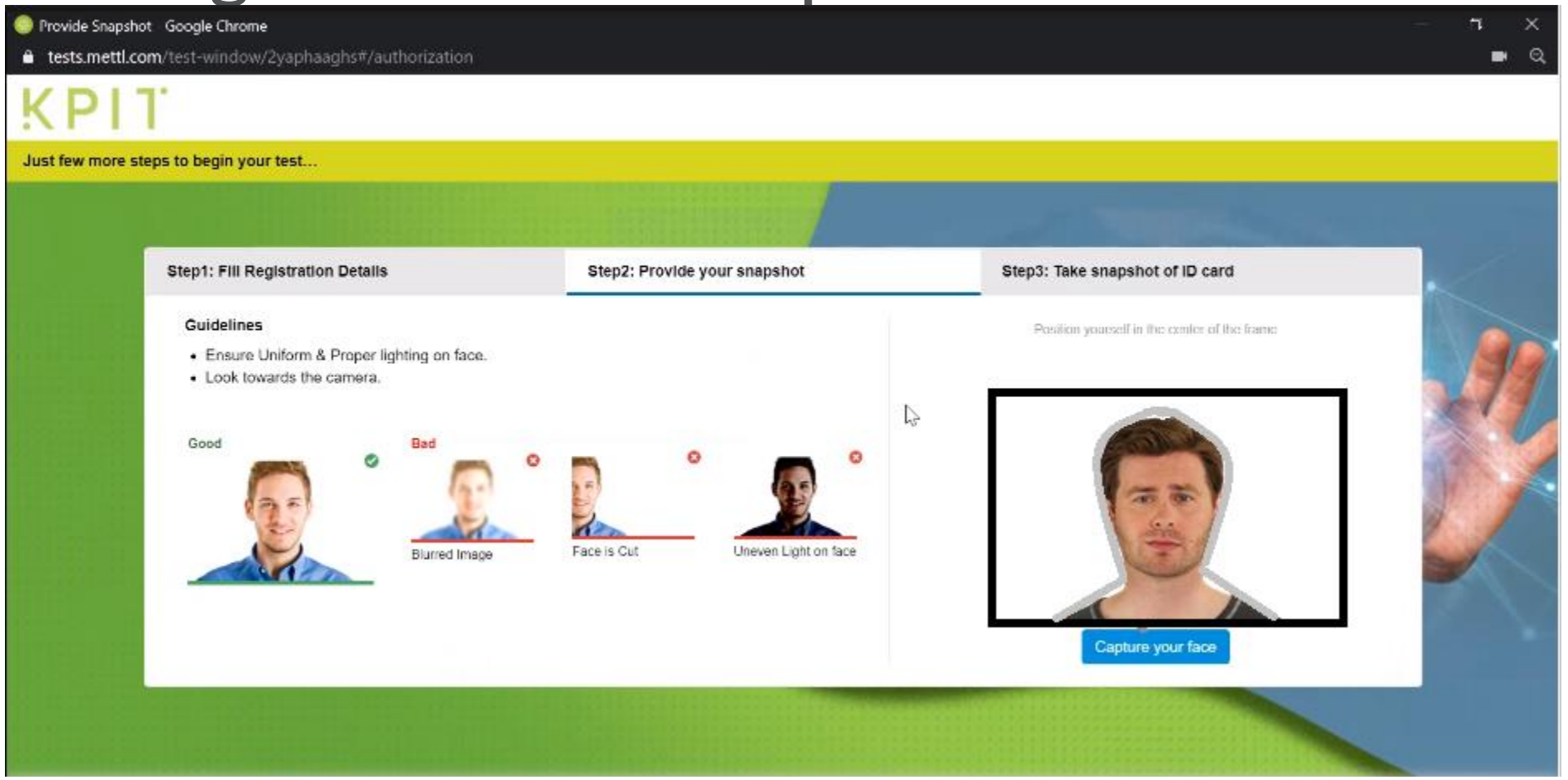

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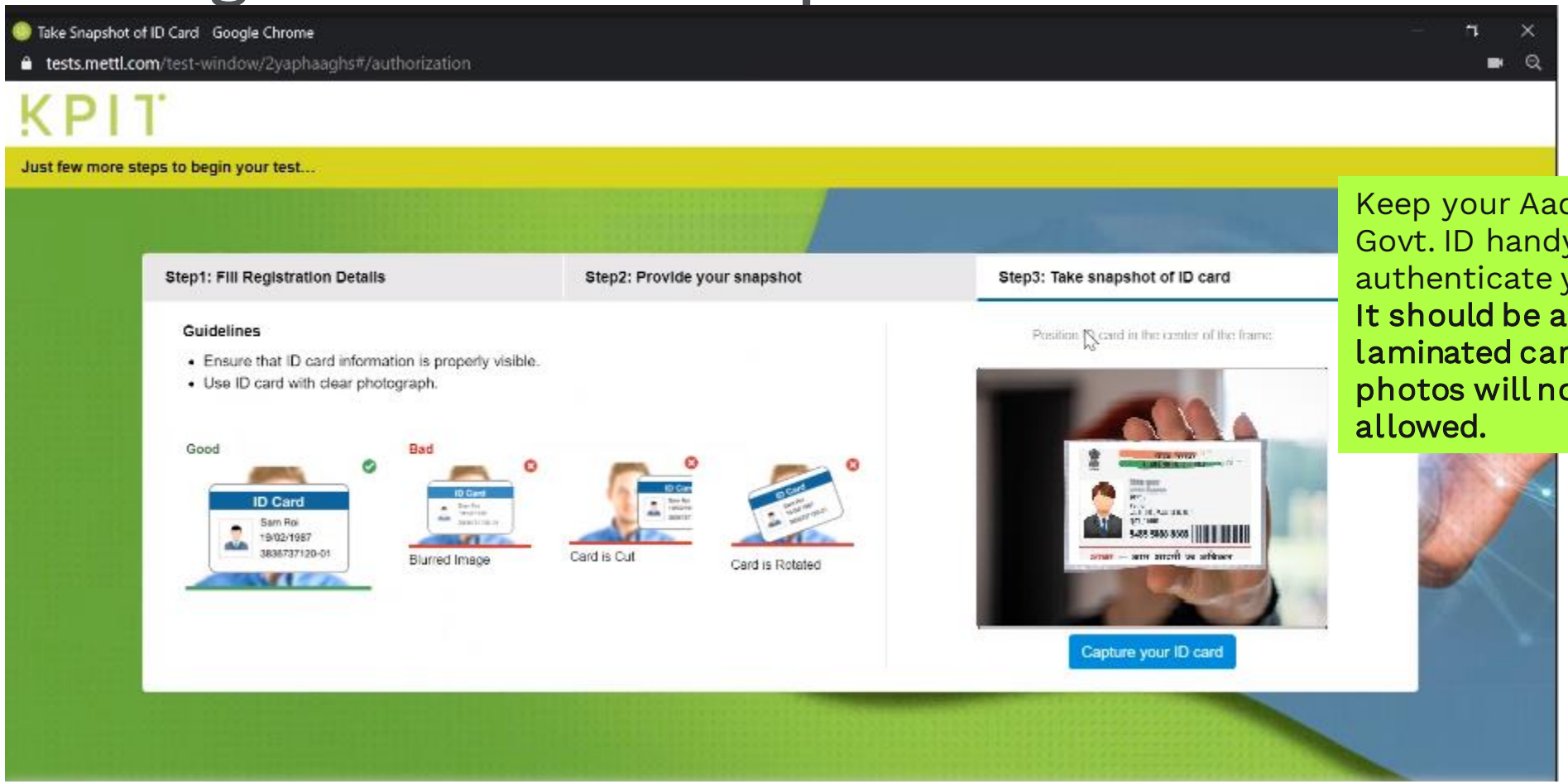
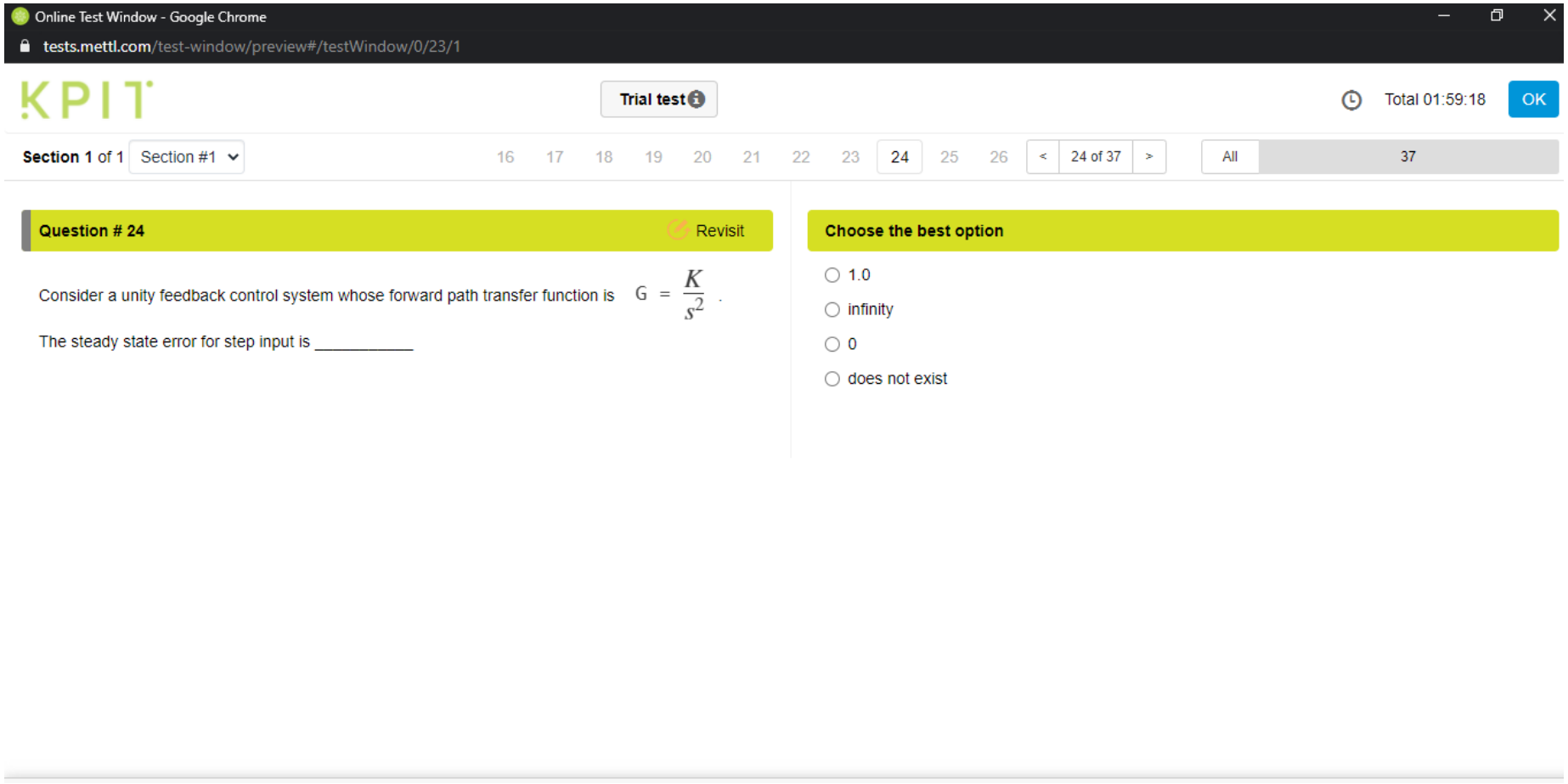


Keep your Aadhar card / Govt. ID handy to authenticate yourself. **It should be a non-laminated card. Mobile-photos will not be allowed.**

If you have any challenge at this step, please contact the Campus Team, KPIT at campus@kpit.com. Please do not communicate with anyone else.

Your MCQ test environment will look like this



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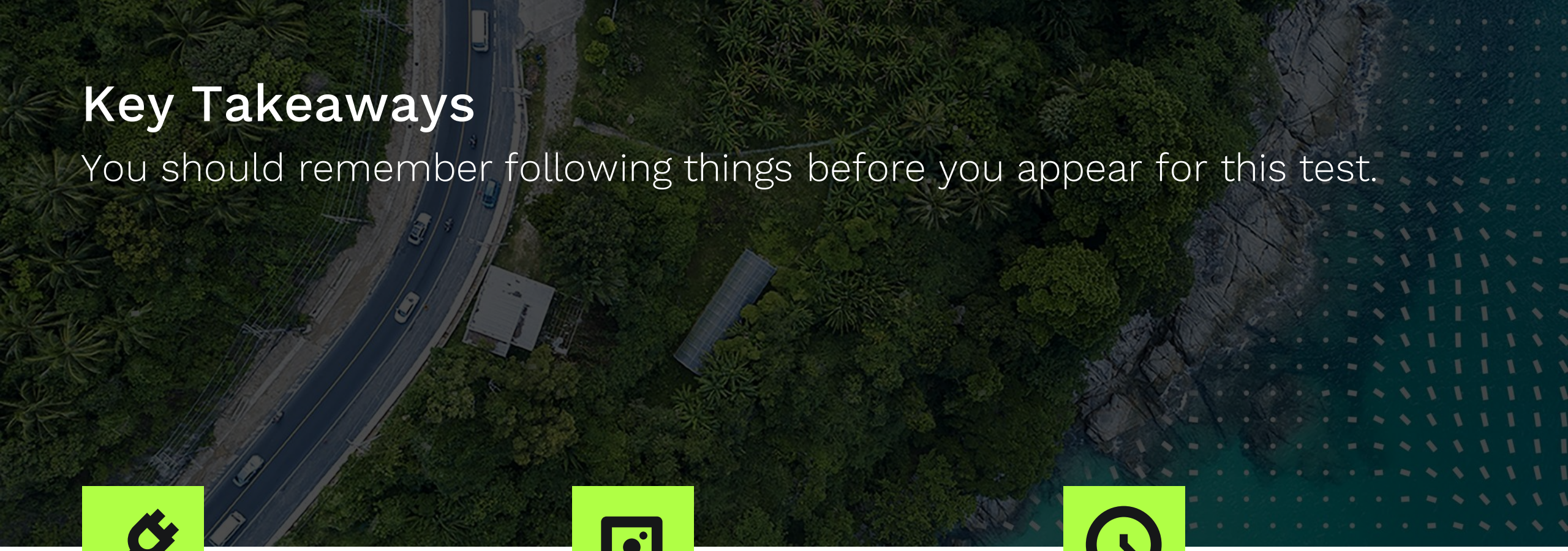
Key Takeaways

You should remember following things before you appear for this test.

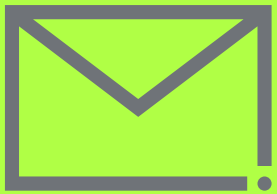


Reliable and high-speed internet connection.

A High-Resolution camera so we can proctor your test.

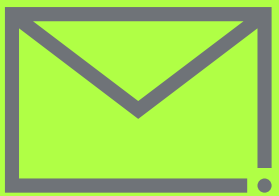
Dedicated time for the test duration and for the initial registration process.

Further Process



After Day 1 test, we will share the list of shortlisted candidates for Day 2.
Similarly, after Day 2, we shall share the list of shortlisted candidates for Day 3.
Final selected candidates shall be intimated on or before 10th July 2021

Contact Details for this Process



Campus Team, KPIT
campus@kpit.com
Please do not communicate with anyone else.

KPIT does not charge any money from anyone for the Recruitment Process.
Beware of Fraudsters !!!
In case of fraud, KPIT Legal / Campus Team will be unable to help you in any manner.

All the best for this test !

Thank You