

تم تحميل هذا الملف من موقع المناهج الإماراتية



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https://t.me/almanahj_bot



Computer Science – Term 1 (2020-21)

Grade 10 – Checkpoint 3

Project Documentation

Student Details:

Student ID. / رقم الطالب	Enter your Student ID		
Student Name / اسم الطالب	Enter your Student Name		
School Name / اسم المدرسة	Enter your School's name.		
Subject / المادة	Computer Science		
Grade & Stream / الصف والمسار	Choose an item.		
Class / الشعبة	Enter your class	Date / تاريخ	Enter the date.

Instructions to complete the Project Task:

- ☒ Read the questions carefully and type your answers in the given space for all the questions.
- ☒ There are no word limits to the answers. However, your answers must relate and strongly justify to the questions.
- ☒ For questions V and VI, highlight the path by filling colours to the nodes of the chosen path.
- ☒ After completing, please submit this document back to your teacher through LMS for marking.
 - (LMS link: <https://lms.moe.gov.ae>)

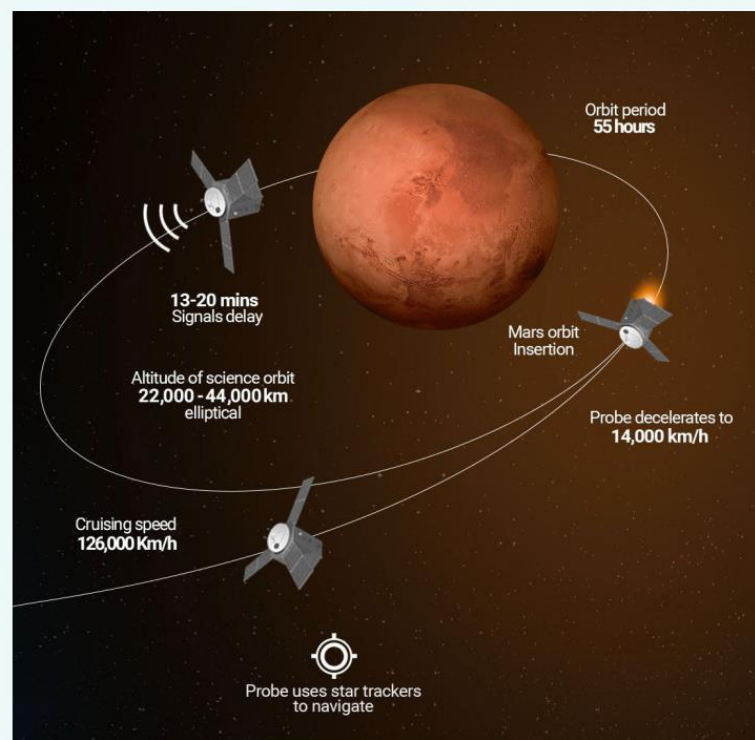
Computer Science G10-General



Hope probe orbit

UAE launched the Hope probe on 15 July 2020 to explore Mars. It takes 200 days to travel from Earth to Mars. The Hope probe will be used to study planet Mars' atmosphere and to check for any interesting events in Mars that could answer scientific questions. It will also be used to determine the types of rocks there and to find out if there are any living creature or water sources.

The probe should maintain a known orbit around Mars as shown in the figure. In this task, you will find a way to make sure the probe is following its orbit around Mars by using the knowledge you learnt through this term. The probe position from the orbit will be given by the x, y values. These values should be 0,0 to stay in its orbit. You will work in a group to use the knowledge you learnt this term to design a system that will control the probe position.





Unit 11 Tree structure and searching algorithms

i) Suggest a way to control the probe movement to keep its orbit around mars.

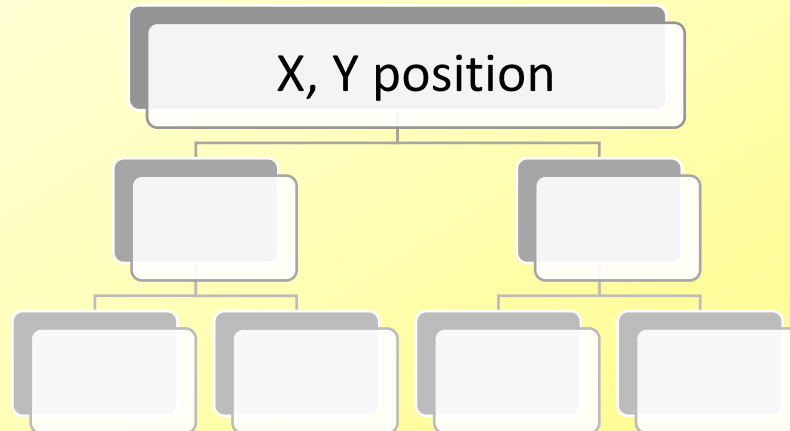
ii) What sensors will be used to in your design? And how it will be used?

iii) Can a motor be used in space to control the probe position? Why?

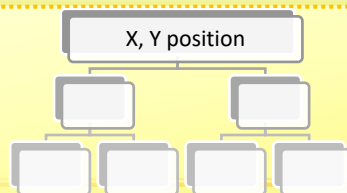
Computer Science G10-General

- iv) Represents the possible movements that the probe can take in order to maintain its x, y position on its orbit.

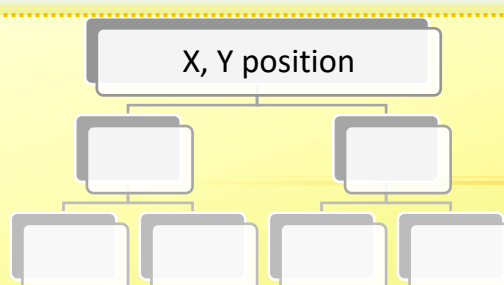
Click on each node and enter the text.



- v) If the probe's position from its orbit has changed to +X, -Y, what path in the tree will move the probe closer to its orbit?



- vi) If the probe's position from its orbit has changed to -X, -Y, what path in the tree will move the probe closer to its orbit?





Unit 11 Tree structure and searching algorithms

vii) To sell your design to the customer you have to describe the problem and explain how your design will solve the problem.

viii) Many other companies do provide a similar project to solve the problem. Why should they customer choose your design among the others? What additional features and services you provide?



Computer Science G10-General

Rewards and risks of your business

You will have to study the rewards and risks of creating this business. In other words, what you will get if your idea was selected by the customer and how you will invest in the given opportunity. And what can happen if you did not succeed in convincing the customer in your idea, and how you can enhance it in the future.

- i) Discuss the rewards that you can get of your business and how it can help you grow your company bigger.



Unit 11 Tree structure and searching algorithms

- ii) Discuss the risks of what can happen if you did not succeed in marketing or executing your idea.