

PHYSICS DEPARTMENT
S3 CONTINUOUS ASSESEMENT EXAM.

ATTEMPT ALL QUESTIONS.

TIME ALLOWED 1:30MINS

SECTION A (20MARKS)

1. Fill in the following spaces to make the statements scientifically meaningful. (5marks)
 - a) **Transverse waves** are characterized by while **longitudinal waves** are characterized by.....
 - b) Theis the distance between two successive **threads** on a screw
 - c) When the object is located between the and the the image formed in a **converging mirror** is virtual
 - d)is the motion of a body failing only under the **force of gravity**.
 - e) The difference in the **potential difference** between the clouds and the earth creates a phenomenon called.....

2. Explain the Following observations as they appear in real life

- a) The leaf of coco yam **never** gets wet with water. (3marks)



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- b) A **long jumper** lands in sand. (3marks)



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- c) When the driver suddenly **applies brakes** on a car, the car tends to **continue** moving (3marks)



- d) There is an illusion of a **pool like appearance** on the tarmac road surface during a hot sunny day. (3marks)



- e) Nose bleeding usually occurs at heights **above 4000m** above sea level. (3marks)



SECTION B (20MARKS)

3. India launched the **Chandrayaan-3 spacecraft** on the lunar surface near the moon's south pole on **Wednesday 23rd Aug 2023**. This was the first space craft to land on the moon's south pole. It was a very phenomenal experience as Indians watched the spacecraft being launched. Briefly explain the physics behind the launch of a spacecraft in space (5marks)

4. Nabatanzi was standing at road side around *Lukaya market* there came a truck loaded with 100bags of cement of 50kg each. The driver was 80kg and the empty truck was 3tonnes and was later discovered to have been moving at 120kmhr^{-1} from Masaka to Kampala. The taxi lost control and bumped into a stationary *vitz* car of mass 0.8tonnes. The taxi stuck on the Vitz and they moved for some time for 10m.



- a) Which kind of collision was this and why? (2marks)

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- b) Work out:

- i) The speed with which the two vehicles moved (3marks)

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- ii) **The resultant force** on the vehicles throughout the distance covered (2marks)

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- c) **The time that elapsed** as the two cars were in contact moving (3marks)

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5.)a) The **Ocean gate submersible Titan** is believed to have been **3.5km** below sea level when contact was lost with the mother vessel and minutes later suffered an implosion. This depth is technically termed as **crush depth**.

How much pressure led to the catastrophic implosion of the titan? (2marks)

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b) A metal cube of 5g and relative density 2.0 was lowered into a solution of turpentine of relative density 1.6.

Calculate the mass of turpentine displaced by the stone. (3marks)

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SECTION C (20MARKS) (use strictly one answer sheet)

6) Last week the physics teacher assigned S5 physics class a task that requires them using convex and concave mirrors. In the task, they are particularly supposed to use a 10cm focal length concave mirror. On reaching the lab yesterday, they were very disappointed that all mirrors were mixed concave and convex and with no labels of focal lengths, worst of all, some of them had broken edges. They actually never knew what was next since they had no idea of how to tell which is which and which one has focal length 10cm

Support materials



Task: As the **student in charge** of the physics laboratory:

- Explain to these disappointed S5 physics students how to distinguish between a concave and a convex mirror. (5marks)
- Design clear steps with explanation on how to help them categorize the concave mirrors in terms of focal lengths so as to choose those of 10cm and those which are not. (10marks)
- How can you prevent this scenario from once again happening? (5marks)