



12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

1	Student Number	RAM20849142
2	Title of Examination Paper	Dynamics Control and Instrumentation
3	Module Code	GOEE4002
4	Date and Time of Examination	13/05/2025 9:30
5	Examination Venue	TYCOCH main Hall
6	Seat Number	B6
7	Number of Answer Books handed in	1

[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)

Complete, fold and seal
(see note 2 below)

SURNAME: RAMADHAN

FORENAME(S): NARIMAN

12% EN
✓ ee



Question No.

Q1

Examiner Only

0

Answer in line

Print y Questions

Q1

$$m = 15 \text{ kg}$$

$$F = 20 \text{ N}$$

$$a = ?$$

a.

$$F_{\text{net}} = ma$$

$$a = \frac{F}{m} = \frac{20}{15} = 1.33 \text{ m/s}^2$$

1
67

Q3

$$G(s) = \frac{(s+3)}{(s+4)(s^2+3s+6)}$$

a.

$$\text{Zero: } z_1 = -3$$

$$\text{Poles: } p_1 = -4$$



Poles are marked
with an x
and zeros with
an o

b.

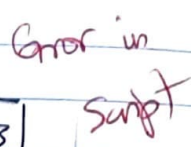
$$s = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

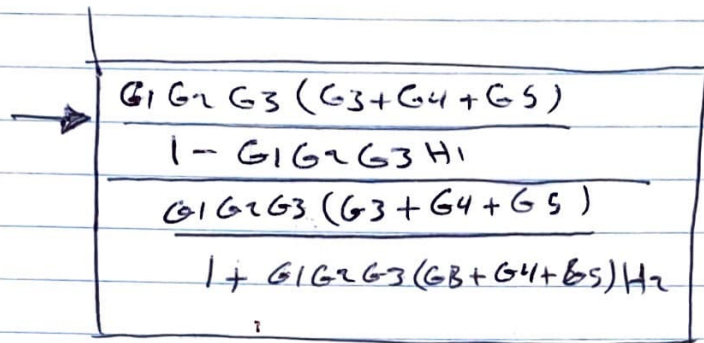
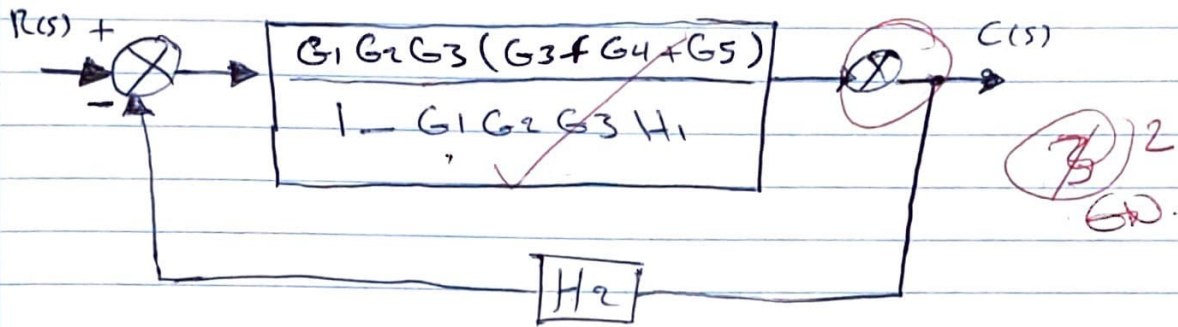
$$p_{2,3} = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(6)}}{2(1)}$$

$$= \frac{-3 + 3.8j}{2} = -1.5 + 1.9j$$

$$= \frac{-3 - 3.8j}{2} = -1.5 - 1.9j \text{ (ignore)}$$

③





$$\frac{R(s)}{C(s)} = \frac{G_1 G_2 G_3 (G_3 + G_4 + G_5)}{1 - G_1 G_2 G_3 (G_3 + G_4 + G_5) H_1 + 1 + G_1 G_2 G_3 (G_3 + G_4 + G_5) H_2}$$

Question No.

Q5

Examiner Only

Question No.

1

1

Rhif y Cwestiwn

Arholwr yn unig

Arholwr yn unig



3. Rhaid i'r atebion fod mewn llawysgrifen ddarlennadwy. Gall yr Arholwyr naill ai amwybyddu sgrïpt annarllennadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.

4. Ysgirfennwch eich atebion mewn inc.
5. Dechreuwch bob ateb ar dudalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnwch llinell drwyddynt.
6. Ni ddylid rhwng unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.
7. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd ar gael oddi wrth y gwyllywr/gwylwyr.
8. Rhaid dychwelyd pob llyfr. Ni chaniateir mynd â llyfrau atebion, wedi eu defnyddio neu heb eu defnyddio, allan o'r lleoliad arholi o dan unrhyw amgylchiadau.

7	Nifer y Llyfrau Alebion a gyflwynwyd	
6	Rhif Sedd	
5	Lleoliad yr Arholliad	
4	Dyddiad ac Amser yr Archoliad	
3	Cod y Modwl	
2	Teitl y Papur Arholliad	
1	Rhif Myfyrwr	

[illegible]

(See the other side for English version)

Lienwch, plygwch a seilwch
(gweler nodyn 2 isod)

CYFENW:

ENW(AU) CYNTAF:

ENW(AU) CYNTAF: