

12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right and seal 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	146376
2	Title of Examination Paper	TC2
3	Module Code	PCEE4000
4	Date and Time of Examination	9:15 22/05/19
5	Examination Venue	Pembrokeshire College
6	Seat Number	

7	Number of Answer Books handed in	1
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[illegible]

Second Mark *WJH*

(Gweler yr ochr arall am y fersiwn Cymraeg)

FOLD → Complete section, remove strip, fold as indicated and SEAL

Please complete this section and SEAL before the examination starts.

Surname Lovegrove (Block Capitals) Forename(s) Harris

PATENT PENDING

PULL & TEAR

FOR ADMINISTRATIVE USE ONLY, CAREFULLY REMOVE PERFORATED STRIP

1)

i) $y = 5x^2 + \frac{5}{x^2} - 8$

$$\frac{dy}{dx} = 5 \times 2x^{2-1} + 5x^{-2} - 8 \times 0x^{-1}$$

$$= 10x - 10x^{-3} \checkmark$$

3

ii) $y = x^3 \cos 5x$

$$\frac{dy}{dx} = 1 \times 3x^{3-1} - 5 \times 1 \sin(5x)$$

$$= 3x^2 - 5 \sin(5x) \checkmark$$

correct
wrong method
for product
rule

2

iii) $y = 4 \sin(2x-3)$

$$\frac{dy}{dx} =$$

0

iv) $y = \frac{2 \sin 3x}{x^3}$

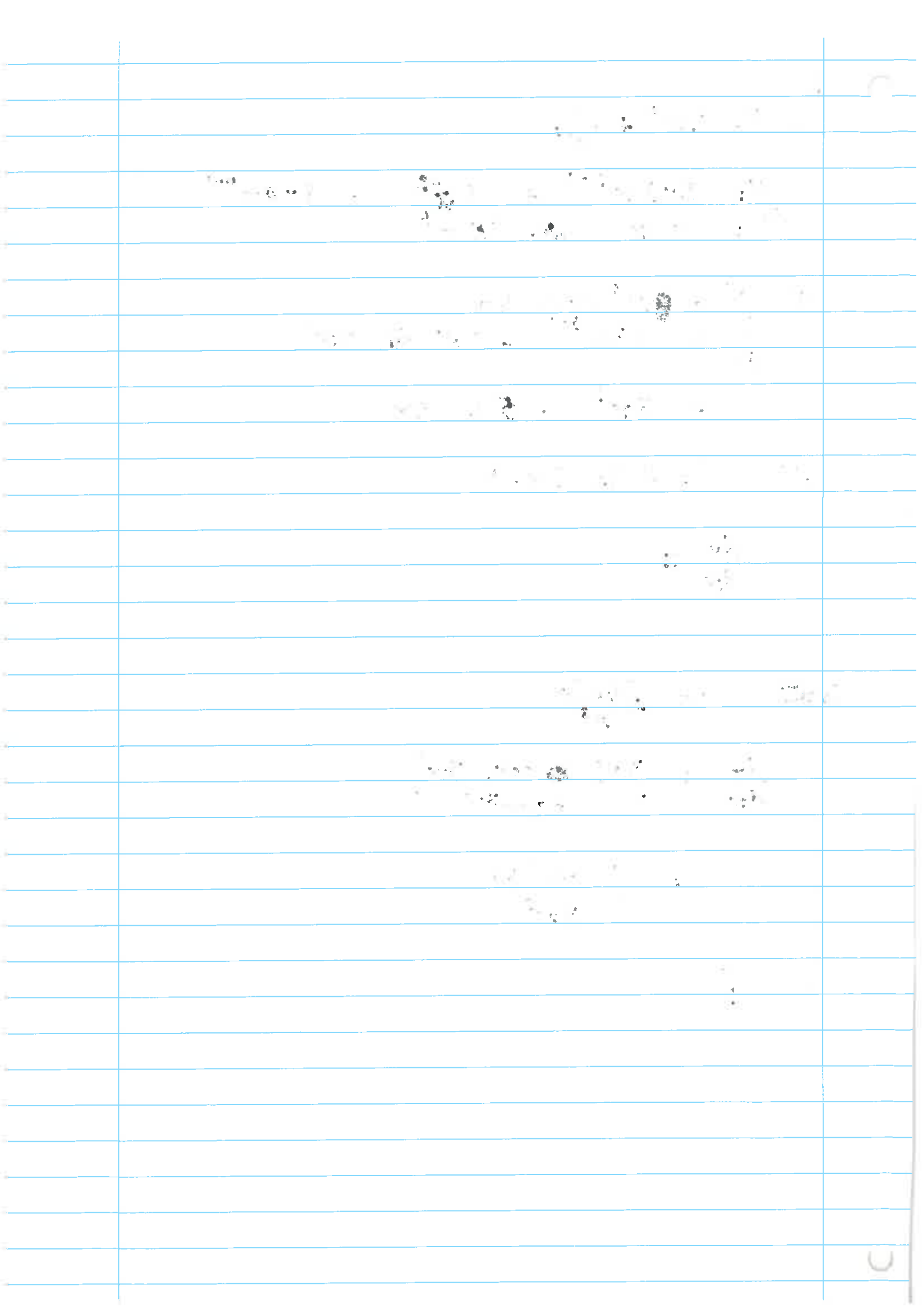
$$\frac{dy}{dx} = \frac{3 \times 2 \cos(3x)}{1 \times 3x^{3-1}}$$

$$= \frac{6 \cos(3x)}{3x^2}$$

2

2) ?

✓
SDP



c) $\int_1^3 (5 - 4x + 4x^3) dx$

$$\int_1^3 (1x + 4x^3) dx$$

$$\begin{aligned} x &= 3 \\ &= 1 \times 3 + 4 \times 3^3 \\ &= 3 + 108 \\ &= 111 \end{aligned}$$

6) the

t midpoint	F	t x F	F = (t - $\bar{x}$) ²
5	2	10	~~400~~ 2025
15	10	150	~~100~~ 1225
25	17	425	~~100~~ 625
35	8	280	~~100~~ 225
45	3	135	~~400~~ 25
Total		1000	

$$\frac{1000}{40} = 25$$

$$F = (5 - \frac{50}{20})^2$$

$$= 400 \cdot 2025$$

✓
50p

Handwritten text in Devanagari script, appearing to be a list or index of items, possibly related to a library or collection. The text is organized into several columns and rows, with some entries underlined or highlighted. The handwriting is somewhat faded and the ink is dark.

1. संस्कृत 2. संस्कृत 3. संस्कृत 4. संस्कृत 5. संस्कृत 6. संस्कृत 7. संस्कृत 8. संस्कृत 9. संस्कृत 10. संस्कृत 11. संस्कृत 12. संस्कृत 13. संस्कृत 14. संस्कृत 15. संस्कृत 16. संस्कृत 17. संस्कृत 18. संस्कृत 19. संस्कृत 20. संस्कृत 21. संस्कृत 22. संस्कृत 23. संस्कृत 24. संस्कृत 25. संस्कृत 26. संस्कृत 27. संस्कृत 28. संस्कृत 29. संस्कृत 30. संस्कृत 31. संस्कृत 32. संस्कृत 33. संस्कृत 34. संस्कृत 35. संस्कृत 36. संस्कृत 37. संस्कृत 38. संस्कृत 39. संस्कृत 40. संस्कृत 41. संस्कृत 42. संस्कृत 43. संस्कृत 44. संस्कृत 45. संस्कृत 46. संस्कृत 47. संस्कृत 48. संस्कृत 49. संस्कृत 50. संस्कृत 51. संस्कृत 52. संस्कृत 53. संस्कृत 54. संस्कृत 55. संस्कृत 56. संस्कृत 57. संस्कृत 58. संस्कृत 59. संस्कृत 60. संस्कृत 61. संस्कृत 62. संस्कृत 63. संस्कृत 64. संस्कृत 65. संस्कृत 66. संस्कृत 67. संस्कृत 68. संस्कृत 69. संस्कृत 70. संस्कृत 71. संस्कृत 72. संस्कृत 73. संस्कृत 74. संस्कृत 75. संस्कृत 76. संस्कृत 77. संस्कृत 78. संस्कृत 79. संस्कृत 80. संस्कृत 81. संस्कृत 82. संस्कृत 83. संस्कृत 84. संस्कृत 85. संस्कृत 86. संस्कृत 87. संस्कृत 88. संस्कृत 89. संस्कृत 90. संस्कृत 91. संस्कृत 92. संस्कृत 93. संस्कृत 94. संस्कृत 95. संस्कृत 96. संस्कृत 97. संस्कृत 98. संस्कृत 99. संस्कृत 100. संस्कृत

7) i) Switch A = 0.75 out of 1

Switch B = 0.82 out of 1

"A" has to have a connection
~~for "B" to have one when~~
in series.

Series = $A = 0.75$ $B = 0.82$

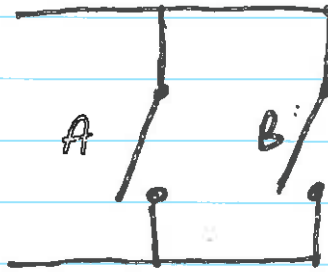


~~0.75 + 0.82 = 1.57~~

$$0.75 + 0.82 = 1.57$$

Smaller chance that B will have a
connection $\frac{1}{1.57} = 0.63$ ✓

ii) Parallel =



$$0.75 \times 0.82 = 0.615$$

$$\frac{1}{0.615} = 1.63$$
 ✓

Switch "B" is able to have
a connection even if "A"
does not.

①

✓ SDP

1. The first part of the paper is a review of the literature.

2. The second part is a description of the methodology.

3. The third part is a discussion of the results.

4. The fourth part is a conclusion and a list of references.

5. The fifth part is a list of figures and tables.

6. The sixth part is a list of appendices.

7. The seventh part is a list of footnotes.

8. The eighth part is a list of acknowledgments.

9. The ninth part is a list of abbreviations.

10. The tenth part is a list of symbols.

11.

12.

13.

14.

15.

16.

17.

18.