

# Advanced STEM Students

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## Tóm tắt nội dung

This text is a part of the series *Some Topics in Advanced STEM & Beyond*:

URL: [https://nqbh.github.io/advanced\\_STEM/](https://nqbh.github.io/advanced_STEM/).

Latest version:

- *Advanced STEM Students*.

PDF: URL: [https://github.com/NQBH/advanced\\_STEM\\_beyond/blob/main/teach/student/NQBH\\_student.pdf](https://github.com/NQBH/advanced_STEM_beyond/blob/main/teach/student/NQBH_student.pdf).

T<sub>E</sub>X: URL: [https://github.com/NQBH/advanced\\_STEM\\_beyond/blob/main/teach/student/NQBH\\_student.tex](https://github.com/NQBH/advanced_STEM_beyond/blob/main/teach/student/NQBH_student.tex).

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## 1 UMT Summer Semester 2025/1480: Introduction to Mathematical Analysis

### 1. TRẦN THANH CƯỜNG.

- Absence: -2 - 2 - 2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:

### 2. HUỖNH LÂM VŨ ĐÌNH.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 1 + 2$ .

### 3. TRƯƠNG CÔNG HOAN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 2 + 1.5 + 0.5$ .

### 4. NGUYỄN HUY HOÀNG [NHH].

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- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.25 + 0.5 + 0.5 + 1 + 2$  (count rooms)  $+ 2$  (build roads)  $+ 2$  (labyrinth)  $+ 2$  (message route)  $+ 2$  (Christmas party)  $+ 0.5 + 1$  (l'Hospital)  $+ 1$  (next prime)  $+ 0.25$  (weird alg)  $+ 0.25$  (repetition)  $+ 0.25$  (miss number)  $+ 0.25$  (increase array)  $+ 0.5$  (permutation)  $+ 0.5$  (2 sets)  $+ 0.5$  (Hanoi tower)  $+ 0.5$  (bee)  $+ 0.5$  (gold coin)  $+ 0.5$  (number spiral)  $+ 0.25$  (2 knights)  $+ 0.5$  (bit string)  $+ 0.5$  (trailing 0)  $+ 0.5$  (coin pile)  $+ 0.25$  ( $3n + 1$ )  $+ 0.5 + 0.25 + 0.25 + 0.5$  (create string)  $+ 1 + 1 + 1$ .

5. LỮ MINH HOÀNG.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:

6. HÀ QUANG HUY.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:

7. NGUYỄN BẢO KHÁNH [NBK].

- Absence: -1.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 2 + 1 + 0.5 + 1 + 1.5$  (l'Hospital)  $+ 0.5 + 0.5 + 0.5 + 1 + 1 + 1.5$ .

8. NGUYỄN LÊ ĐĂNG KHOA [NLDK].

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$  (gift)  $+ 1.5 + 0.25 + 0.5$  (doubles)  $+ 0.5$  (prime)  $+ 0.5$  (houseboat)  $+ 1$  (red black)  $+ 1$  (count rooms)  $+ 1$  (dice)  $+ 1$  (min coin)  $+ 1$  (coin combination I)  $+ 1$  (coin combination II)  $+ 1$  (grid path I)  $+ 1.5$  (book shop)  $+ 1$  (exp I)  $+ 1$  (exp II)  $+ 0.5$  (count divisor)  $+ 1$  (common divisor)  $+ 1.5$  (Josephus queries)  $+ 2$  (sum divisor)  $+ 0.75$  (next prime)  $+ 1$  (binom coeff)  $+ 1$  (create string II)  $+ 1$  (distribute apple)  $+ 1$  (Christmas party)  $+ 1.75$  (l'Hospital)  $+ 0.25$  (weird alg)  $+ 3$  (permutation order)  $+ 1.5$  (meet middle)  $+ 0.25$  (repetition)  $+ 0.25$  (increase array)  $+ 0.25$  (permutation)  $+ 0.25$  (number spiral)  $+ 0.25$  (2 sets)  $+ 0.25$  (bit string)  $+ 0.25$  (trailing zeros)  $+ 0.25$  (palindrome reorder)  $+ 0.25$  (coin pile)  $+ 0.25$  (hangover)  $+ \text{sum}(0.25) + 0.25$  (humidex)  $+ 0.25$  (specialized 4-digit num)  $+ 0.25$  (quicksum)  $+ 0.25$  (Dirichlet)  $+ 0.5 + 1$  (circumference circle)  $+ 1$  (filled subgrid count I)  $+ 0.5 + 1 + 0.5$  (naughty cow)  $+ 0.5$  (chicken fox)  $+ 0.5$  (farm guard)  $+ 0.5$  (wolf sheep)  $+ 1$  (labyrinth)  $+ 1$  (ocean).

9. PHAN GIA LẠC [PGL].

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 0.25 + 0.25 + 0.5$  (doubles)  $+ 0.5$  (houseboat)  $+ 0.5$  (prime)  $+ 1$  (count room)  $+ 1$  (min coin)  $+ 0.5$  (count divisor)  $+ 0.75$  (next prime)  $+ 1$  (prime multiple)  $+ 1$  (binom coeff)  $+ 1$  (create string II)  $+ 1$  (distribute apple)  $+ 1$  (Christmas party)  $+ 0.25$  (bitstring)  $+ 0.25$  (gray code)  $+ 2 + 0.5 + 1 + 2$  (Riemann sums).

10. PHAN PHƯƠNG PHI [PPP].

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 0.5 + 1 + 0.5 + 0.5$  (prime)  $+ 1$  (count rooms)  $+ 1$  (dice)  $+ 1$  (coin)  $+ 1$  (coin combination I)  $+ 0.5$  (count divisor)  $+ 1$  (common divisor)  $+ 1$  (distribute apple)  $+ 0.75$  (l'Hospital)  $+ 1 + 1$  (count bit)  $+ 0.5$  (2 knights)  $+ 0.5 + 0.5 + 1$  (filled subgrid count I)  $+ 0.5 + 0.5 + 0.5$ .

11. ĐẶNG MINH PHƯƠNG.

- Absence: -2 - 2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:

12. NGUYỄN HOÀNG QUÂN.

- Absence: -1.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus: 1.

13. ĐƯỜNG NGUYỄN MINH SƠN.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 1.5$ .

14. HẦU TRUNG THÀNH.

- Absence: -2 - 2 - 2 - 2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .

15. TẠ MINH THIÊN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 1 + 1 + 2.5 + 1.5$ .

16. LÊ NGUYỄN QUỐC TOÀN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2 + 2 + 2$ .

17. NGUYỄN ANH TUYẾN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus: 1.

18. NGUYỄN NHƯ Ý.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 1$ .

## 1.1 Potential topics for midterm exam

1. Cho dãy số  $\{u_n\}_{n=1}^{\infty}$ . Cho vài giá trị cụ thể của  $\varepsilon$ , tính  $N_\varepsilon$ .

## 2 UMT Summer Semester 2025/1481: Introduction to Mathematical Analysis

1. LÊ MINH TRÂM ANH.

- Absence: -2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $3.5 + 3.5 + 1.5 + 1$ .

2. NGUYỄN BẢO ANH.

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Late: 5 mins.
- Bonus: 1.5.

3. CAO GIA BẢO.

- Absence: -2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .

4. VŨ VĂN ĐẠT.

- Absence: -2 - 1.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 0.5 + 1$ .

5. TRẦN VĂN HẬU.

- Absence: -2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 2.5 + 1 + 1.5$ .

6. NGUYỄN NGỌC BÍCH HIỀN [NNBH].

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $0.25 + 1 + 1 + 2 + 1 + 1.5 + 1.5$  (int poly) +  $1.5$  (int poly like).

7. NGUYỄN VĂN HIẾU.

- Absence: -2 - 2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .

8. DƯƠNG XUÂN HƯNG [DXH].

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 1 + 1$  (gift) +  $1$  (picture) +  $2$  (count rooms) +  $2.5$  (coin combination I) +  $2$  (coin combination II) +  $3$  (array description) +  $1.5$  (numerical differentiation OOP) +  $2$  (next prime) +  $0.5$  (weird alg) +  $1.5$  (int poly) +  $1$  (miss num) +  $0.5$  (repetition) +  $0.5$  (increase array) +  $0.5$  (hangover) +  $3$  (IMO2007P3) +  $0.5$  (ugly num) +  $1$  (max xor sum) +  $0.5$  (Pascal triangle).

9. TRẦN LÊ GIA HUY.

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Late:  $20 + 21$  mins.

10. TRẦN QUANG HUY.

- Absence: -2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 2 + 1.5$ .
- Late:  $22$  mins.

11. DẶNG PHÚC AN KHANG [DPAK].

- Absence: -2 - 2 - 2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75$ .
- Late:  $15 + 52 + 80$  mins.
- Bonus:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 1 + 0.5$  (virus) +  $0.5$  (gift) +  $0.5$  (game) +  $0.25$  (financial management) +  $0.5 + 0.5$  (prime) +  $1$  (red black) +  $1 + 1$  ( $x^a$ ) +  $1$  (count room) +  $1$  (build road) +  $1$  (dice combination) +  $1$  (minimizing coin) +  $1$  (coin combination I) +  $1$  (coin combination II) +  $1.5$  (remove digit) +  $1$  (grid path I) +  $1$  (book shop) +  $1$  (exp I) +  $1.5$  (edit distance) +  $1.5$  (longest common subsequence) +  $1$  (num diff polynomial) +  $1.5$  (prime multiple) +  $0.75$  (next prime) +  $1$  (binom coeff) +  $1.5$  (meet middle) +  $1.5$  (Hamming dist) +  $0.25$  (palindrome reorder) +  $0.75$  (2 set) +  $0.25$  (bit string) +  $0.25$  (num spiral) +  $0.25$  (trailing 0) +  $0.25$  (tower Hanoi) +  $0.5$  (apple division) +  $0.25$  (create string) +  $0.25$  (IMO2007P5) +  $0.25$  (IMO2008P3) +  $0.25$  (hangover) +  $0.25$  (sum) +  $0.1$  (humidex) +  $0.25$  (quicksum) +  $0.25$  (specialized 4-digit num) +  $0.25$  (contesting decision) +  $0.25$  (Dirichlet) +  $0.25$  (circumference circle) +  $0.25$  (vertical histogram) +  $1.5$  (IMO2007P1) +  $0.25$  (gold coin) +  $0.25$  (bee) +  $0.25$  (manager) +  $0.25$  (Pascal lib) +  $0.25$  (ride school) +  $0.25$  (self num) +  $0.25$  (speed limit) +  $0.25$  ( $3n + 1$  prob) +  $0.25$  (calendar) +  $0.5$  (sym order) +  $0.25 + 0.75$  (knapsack) +  $0.5$  (tile) +  $0.25$  (Hanoi tower) +  $0.25$  (mex grid construction) +  $0.25$  (knight move grid) +  $0.5 + 1 + 0.25 + 2$  (Stirling 1) +  $2$  (falling factorial) +  $2$  (rising factorial) +  $0.5$  (Pascal triangle) +  $0.5$  (naughty cow) +  $0.5$  (pond) +  $1$  (ocean) +  $0.5$  (chicken fox) +  $0.5$  (farm guard).

12. LƯƠNG QUỐC KHÁNH.

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 1 + 1 + 1 + 0.5$ .

13. NGUYỄN HÀ ĐĂNG KHOA.

- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1 + 0.5 + 2.5$ .

14. NGUYỄN HUY ĐĂNG KHOA.

- Absence: -1 - 2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .

15. HUỖNH ĐỖ ĐĂNG KHOA.

- Late:  $23 + 45 + 25 + 20 + 10 + 25 + 22$  mins.
- Early attendance:  $0.75 + 0.75$ .

- Bonus: 1.
16. TRẦN TRUNG KIÊN.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
17. NGUYỄN HUỲNH CHÍ LÂM.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Bonus:  $1 + 0.75 + 1 + 1$ .
18. LÊ HOÀNG LINH.
- Absence: -2.
  - Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Bonus:  $1 + 1 + 1.5 + 1 + 2 + 2.5 + 1.5$ .
  - Late: 30 mins.
19. LÂM BẢO NGỌC.
- Absence: -1.
  - Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Bonus:  $0.25 + 1 + 4 + 1 + 1 + 3$ .
  - Late: 10 mins.
20. NGUYỄN LƯƠNG NGHĨA [NLN].
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Bonus:  $0.5 + 1 + 1 + 3 + 1.5 + 1.5 + 1.5 + 1 + 1 + 1.5$  (int) + 2.5.
21. TRẦN PHÚC NGUYỄN.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
22. BÙI VĂN NHỎ.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Late:  $40 + 10$  mins.
  - Bonus:  $1 + 1 + 1 + 1 + 3 + 0.75 + 2$ .
23. LÊ THANH TÂN.
- Absence: -1 - 1 - 2.
  - Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Late: 5 mins.
24. HUỲNH THỊ KIỀU THU.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
  - Bonus:  $1 + 1 + 1 + 1.5 + 1.5 + 1 + 2$ .
25. HOÀNG NGHĨA TÍN.
- Absence: -2.
  - Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
26. HOÀNG ANH TUẤN.
- Absence: -2 - 2 - 2.
  - Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
27. NGÔ THANH TÙNG.
- Absence: -2 - 2 - 2 - 2.
  - Early attendance:  $0.75 + 0.75 + 0.75$ .
  - Late:  $29 + 15$  mins.

28. NGÔ HOÀNG TÙNG [NHT].

- Absence: -2.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 1.5 + 0.5 + 0.5$  (virus) + 0.5 (vni) + 0.5 (gift) + 0.5 (game) + 1 + 1 (count rooms) + 1 (labyrinth) + 1 (build roads) + 1 (dice) + 1 (min coin) + 1 (coin combination I) + 1 (coin combination II) + 1 (remove digit) + 1 (grid path) + 1.5 (array description) + 1 (book shop) + 1.5 (count towers) + 1.5 (edit distance) + 1 (exp I) + 1 (exp I) + 1 (num diff poly) + 1.25 (num diff poly 1) + 1.5 (Josephus queries) + 2 (sum divisor) + 0.75 (next prime) + 0.75 (next prime) + 1 (binom coeff) + 1 (create string II) + 1 (distribute apple) + 1 (Christmas party) + 3 (permutation order) + 1.5 (Hamming dist) + 0.75 (int poly C++) + 0.25 (palindrome reorder) + 0.25 (2 sets) + 0.25 (create string) + 0.5 (midterm) + 0.15 (humidex) + 0.25 (hangover) + 0.25 (specialized 4 digit num) + 0.25 (quick sum) + 0.25 (contesting decision) + 0.25 (vertical histogram) + 0.25 (ride school) + 0.75 (ugly number) + 0.25 (bee) + 0.25 (gray code) + 1 (filled subgrid count II).

29. TRẦN MỘNG TUYỀN.

- Absence: -1 - 1.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1.5 + 2 + 2.5$ .

30. NGUYỄN QUANG VỸ.

- Absence: -1 - 2 - 1.
- Early attendance:  $0.75 + 0.75 + 0.75 + 0.75 + 0.75 + 0.75$ .
- Bonus:  $1.5 + 4 + 1 + 1.5 + 1.5 + 1 + 1.5 + 1.5 + 2.5$ .

### 3 UMT Summer Semester 2025/1387: Combinatorics & Graph Theory

1. VÕ NGỌC TRÂM ANH [VNTA].

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $0.75 + 1 + 2 + 1.5 + 0.5 + 0.5 + 0.5$  (Fibonacci + Lucas) + 0.5 (virus) + 2.5 (gen func) + 2 (Euler candy gen func) + 0.5 (houseboat) + 0.5 (prime) + 1 (red black) + 1 (count rooms) + 1 (labyrinth) + 1 (build roads) + 1 (message routes) + 1 (build team) + 1 (round trip) + 1 (monster) + 1.5 (flight route) + 1 (dice) + 1 (coin) + 1 (coin combination I) + 1 (coin combination II) + 1 (grid path) + 2 (Dijkstra) + 3 (proof Dijkstra) + 2.5 (Dijkstra priority queue) + 1 (exp I) + 1 (exp II) + 1 (Stirling 2 DP) + 0.5 + 0.75 + 1 (valid parentheses) + 1 (C++ valid parentheses) + 1 (PAC Catalan C++) + 1 (Pascal triangle, multinomial) + 0.5 (count geo domain) + 1.5 (Josephus queries) + 1.5 (Bell matrix multiplication) + 0.5 + 0.5 + 1 (count coprime pair) + 1 (binom coeff) + 1 (create string II) + 1 (distribute apple) + 1 (Christmas party) + 0.75 (spanning tree) + 0.75 (tiling) + 0.25 (weird alg) + 0.25 (repetition) + 0.25 (miss number) + 0.25 (increase array) + 0.25 (permutation) + 1 (line segment intersection) + 1.5 (graph representation converters) + 0.25 (derangement) + 0.25 (coffee) + 2 (score tool) + 1 (count 1) + 0.5 (knapsack) + 1 (int partition) + 0.5 ( $p \ 5n + 4$ ) + 0.75 (Newton binomial) + 0.25 (partition) + 0.5 (subset square num) + 2 (Stirling II) + 1 (falling factorial) + 1 (rising factorial) + 0.5 (Pascal triangle) + 0.5 (Tribonacci) + 1 (Ferrers diagram) + 2 (proof leaf of tree).
- Midterm: 11.25.

2. HOÀNG ANH [HA].

- Early attendance:  $0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $1.5 + 1 + 0.5 + 1.5 + 1$  (Stirling 2) + 0.25 + 0.25 + 0.5 (Euler) + 0.25 (monic monomial) + 0.5 + 0.25 + 1 (types of graph) + 0.5 + 1 (recursion sum of powers) + 0.5 + 0.25 + 0.25 + 0.75 (graphic) + 0.5 + 0.25 + 0.25 + 0.75 + 0.5 + 0.75. Done.
- Midterm: 6.5.

3. VÕ HUỖNH THÁI BẢO.

- Early attendance:  $0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Late: 7 mins.

- Bonus:  $0.5 + 0.5 + 0.75 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 1 + 0.5 + 0.5 + 0.5 + 0.5$  (Stirling 2) +  $0.5 + 0.5 + 1.5$  (gen func) +  $0.5$  (Euler candy) +  $0.5 + 0.5 + 0.5 + 0.25$  (Dirichlet principle) +  $1$  (derangement) +  $1 + 1 + 1$  (Pascal triangle) +  $0.25 + 0.25 + 0.25 + 0.5 + 0.5 + 0.25 + 0.5 + 0.5 + 0.25 + 1$  (Petersen) +  $0.5 + 0.5 + 0.5$  (forest) +  $1 + 1 + 1 + 1 + 1 + 1 + 0.5$   
To 6.216 p. 16+++
- Midterm: 3.75.

#### 4. TRẦN MẠNH ĐỨC.

- Absence: -1 - 1.
- Early attendance:  $0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.5 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25$ .
- Bonus:  $1.5 + 1 + 1.5 + 0.5$  (Stirling 2).
- Late:  $18 + 7 + 30$  mins.
- Midterm: 5.75.

#### 5. NGUYỄN TRUNG HẬU.

- Absence: -2 - 2 - 2 - 2 - 2 - 2 - 2.
- Early attendance:  $0.25 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.5$ .
- Bonus:  $1 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25$  (plane split) +  $0.25 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25$  (gen func) +  $0.25 + 0.25 + 0.25 + 0.5$  (bowtie graph) +  $0.5$  (circuit) +  $0.5 + 0.25 + 0.25$  (longest path method) +  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .  
Tối bài 26 p. 18
- Late:  $24 + 20 + 10 + 70$  mins.
- Midterm: 0.75.

#### 6. PHẠM PHƯỚC MINH HIẾU [PPMH].

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $1 + 0.5 + 1$  (Stirling 2) +  $1$  (Stirling 2 Python) +  $1.5$  (int partition) +  $1.5$  (Stirling 1 Python).  
Chấm report Hiếu week 1: B2 Catalan mã O+1 bạn hiểu sai đề: đề kêu chứng minh số cách đặt  $n$  dấu ( & ) đúng là số Catalan  $C_n$ , hông phải tính số Catalan số 4 nên +0. bài  $m$  số 0 &  $n - m$  số 1, làm cách khác tui +1. Prob. 4 CM  $|2^{[n]}| = 2^n$ : +1. Prob. 5: dùng nguyên lý bao hàm-loại trừ chưa chặt chẽ, bài đó cần lý luận nhiều & khó hơn: +0.25. Prob. 6: +1. Prob. 1: +1. Prob. 2: +1.  
Ex1.cpp: +0.5, Ex3: +0.5, Ex5.cpp: +1, Ex6.cpp: +1. Ex7.cpp: +1, Ex8.cpp & Ex9.cpp: +0 (bài toán khó hơn thế vì có thể có nhiều bộ điểm thẳng hàng nên việc mô tả cấu trúc hình học là phần khó chính)
- Midterm: 4.

#### 7. HOÀNG QUANG HUY.

- Absence: -2 - 1.
- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $2 + 1.5$ .
- Midterm: 5.25.

#### 8. PHAN NGUYỄN DUY KHA.

- Absence: -1 - 1 - 2 - 2 - 1.
- Early attendance:  $0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.5$ .
- Bonus:  $1.5 + 1 + 1 + 1 + 1.5 + 1.5 + 1.5$  (\$).
- Late: 60 mins.
- Midterm: 7.

#### 9. DẶNG PHÚC AN KHANG.

- Bonus:  $0.5 + 1 + 1$ .

#### 10. PHẠM MINH KHOA.

- Absence: -2 - 2 - 1 - 1 - 2.

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.25 + 0.5$ .
- Bonus: 0 (midterm exam: cheat use phone)
- Late: 10 mins.
- Report: 0.

11. TRẦN THÀNH LỢI.

- Absence: -2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2.
- Early attendance:  $0.25 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 0.25$ .
- Bonus:
- Late:  $23 + 60 + 15$  mins.
- Midterm: 0.

12. LÊ ĐỨC LONG.

- Absence: -2.
- Early attendance:  $0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $1 + 0.5 + 1 + 1 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25 + 0.5$  (type of graph) +  $0.25 + 0.75 + 0.25 + 0.5 + 1$  (Christmas party) +  $0.5 + 0.25 + 0.25 + 0.5$  (Python Euler candy) +  $0.75 + 1$  (Euler candy gen func) +  $0.5$  (Python Pascal identity) +  $0.5$  (Catalan dp) +  $0.5$  (bracket sequences I) +  $0.5 + 0$ . (Stirling 2) +  $0.5$  (Stirling 1) +  $0.5$  (Bell) +  $0.25$  (Bell appo).
- Tối 19. CM Dijkstra p. 19
- Midterm: 6.

13. LÊ CÔNG HOÀNG PHÚC.

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.5 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $1 + 1 + 1$  (induction).
- Late:  $24 + 3 + 12$  mins.
- Midterm: 4.5.

14. HUỖNH NHẬT QUANG.

- Absence: -2 - 2 - 2 - 2 - 2 - 2.
- Early attendance:  $0.25 + 0.25 + 0.25 + 0.25 + 0.25 + 0.25$ .
- Late:  $10 + 20 + 20 + 20 + 28 + 22 + 20$  mins.
- Midterm: 2.
- Bonus:  $0.25 + 0.5 + 0.25 + 0.25 + 0.25$ .
- Toi report week 2 p. 5.
- Comment: Không compile được file tex.

15. CAO SỸ SIÊU (CSS).

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.5 + 0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $1 + 1 + 1 + 0.5 + 1$  (derangement) +  $0.75$  (inclusion-exclusion) +  $2$  (PAC Catalan) +  $1$  (Catalan proof) +  $2$  (Pascal triangle) +  $0.5 + 0.5 + 0.5 + 0.5 + 0.75$  (lack of graph isomorphism) +  $1 + 1 + 0.25 + 0.5 + 1 + 2$  (Havel-Hakimi) +  $1.5$  (gen func) +  $2.5$  (proof Dijkstra) +  $1 + 1 + 1 + 0.5 + 1 + 0.5 + 1 + 1 + 1$ .
- To P. 10.2.12 p. 31
- Late: 8 mins.
- Midterm: 5.75.

16. SƠN TÂN [ST].

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25$ .
- Bonus:  $1 + 1 + 1.5 + 2$  (Linux).
- Chấm report Sơn Tân:  $0.25$  (a) +  $0.25$  (b) +  $0.25$  (c) +  $0.25$  (e) +  $0.25$  (g, ghi sai mũ) +  $0.25$  (h) +  $1.5$  (Pascal, làm được cho  $(\sum_{i=1}^m a_i)^n$  nhiều điểm hơn) +  $2$  (tính  $C_n^k$ ) +  $1$  (graphic sequence) +  $1.5$  (Euler d) +  $2.5^{***}$  (Euler).



- Midterm: 6.

#### 17. NGUYỄN NGỌC THẠCH [NNT].

- Absence: -1.
- Early attendance:  $0.25 + 0.25 + 0.5 + 0.25 + 0.5 + 0.5 + 0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.25$ .
- Bonus:  $3 + 1 + 1 + 1.5 + 2$  (Catalan) + 5 (Euler candy) + 2.5 (induction) + 1 (toss coin) + 1 (dice roll) + 1 (dice roll) +  $1 + 1 + 2$  (combinator identity) + 1.5 (dollar) +  $0.5 + 2.5 + 1.5 + 1 + 1 + 1 + 1 + 1.5 + 1 + 1.5$  (Stirling 2 recursive).
- Late:  $5 + 23 + 34$  mins.
- Midterm: 8.25.

#### 18. PHAN VINH TIẾN [PVT].

- Early attendance:  $0.25 + 0.5 + 0.25 + 0.5 + 0.25 + 0.25 + 0.25 + 0.5 + 0.25 + 0.25 + 0.5 + 0.25 + 0.5$ .
- Bonus:  $2 + 0.5$  (virus) +  $1 + 2$  (binomial) + 1 (exp I) + 1 (exp II) + 1 (Stirling 2 DP) + 1 (Bell) + 1.5 (ads) + 1 (banana) +  $0.5$  (point location test) + 2 (IMO2007P1) + 2 (Newton binomial, multinomial thm) + 1.5 (count bit) + 1 (int partition).
- Late:  $8 + 25 + 16$  mins +  $48 + 14 + 10$ .
- Midterm: 11.

### 3.1 Potential topics for midterm- & final exams

- Chứng minh bằng phương pháp quy nạp toán học.
- Bài toán chia kẹo Euler.
- Khai triển nhị thức Newton.
- Sử dụng định lý Euler & thuật toán Havel-Hakimi để chạy tay kiểm tra 1 dãy có phải là graphical sequence hay không. Vẽ đồ thị minh họa.
- Hàm sinh.
- Chạy tay thuật toán Dijkstra.
- Shortest path problem on graph – Bài toán đường đi ngắn nhất.

## 4 UMT Summer Semester 2025/1488: Introduction to AI

#### 1. HỒ LÊ DUY.

- Absence: -2 - 2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Final assignment: -1.

#### 2. TRƯƠNG CÔNG HOAN.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Final assignment: -1.

#### 3. LỮ MINH HOÀNG.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Final assignment:

#### 4. DINH KIM HƯNG.

- Absence: -1.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $3 + 3$ .
- 
- Final assignment: 1.

#### 5. HUỖNH VÔ QUỐC KHÁNH.

- Absence:  $-2 - 2 - 2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5$ .

6. NGUYỄN NHẬT KHÔI.

- Absence:  $-2 - 1 - 2 + 0.5$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .

7. VÒNG LÝ NĂM PHÚC VLNP.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1.5 + 2$  (extended scheduling)  $+ 3$  (solve triangle ccc)  $+ 3$  (solve triangle gcg)  $+ 3$  (solve triangle gcg)  $+ 2$  (graph color)  $+ 3$  (A\*)  $+ 4$  (TSP).

8. HẦU TRUNG THÀNH.

- Absence:  $-2 - 2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Late: 5 mins.

9. NGUYỄN THI.

- Absence:  $-2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2$ .

10. ĐẶNG NGUYỄN DUY TRƯỜNG.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .

## 5 UMT Summer Semester 2025/1493: Information Technology Fundamentals 2

1. CAO NGUYỄN GIA AN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $3.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 1 + 1 + 1.5 + 2.5 + 1$  (eval func)  $+ 1.5 + 2 + 2 + 2.5 + 1.25 + 1 + 1 + 0.5 + 1$  (Fib)  $+ 1.5$  (HN)  $+ 2 + 2 + 2 + 2.5$  (partition)  $+ 1.5 + 2 + 0.5 + 0.5 + 1 + 1$ .
- Midterm: 4.5.

2. HOÀNG TRÂM ANH.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 2 + 2 + 2.5 + 1.5 + 0.5 + 1 + 1.5 + 0.5 + 1 + 1 + 1$ .
- Midterm: 8.

3. BÙI NGUYỄN MINH DŨNG.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5$ .
- Midterm: 10.

4. NGUYỄN NGỌC HÂN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 1 + 1.5 + 0.5 + 1 + 1 + 1.5 + 1 + 1.5 + 2 + 2 + 2.5 + 0.5 + 1 + 1.5 + 1.5$ .
- Midterm: 7.

5. NGUYỄN THÀNH THÁI HIỆP.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $3 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5 + 1 + 1.5 + 2.5$  (near perfect)  $+ 2 + 2 + 0.5 + 0.5 + 1$  (sym num)  $+ 1$  (prime fact).
- Midterm: 6.5.

6. VŨ NGUYỄN YẾN HOA.

- Absence:  $-2$ .

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 2 + 2.5 + 1 + 1.5 + 0.5 + 1$  (eval func)  $+ 1.5 + 2 + 1 + 1.5 + 2 + 1 + 0.5 + 1 + 1 + 1 + 2$ .
- Midterm: 6.

7. ĐỖ HUY HOÀNG.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1$  (Fib)  $+ 1.5 + 2 + 1.5 + 0.5 + 0.5 + 1 + 1 + 2$ .
- Midterm: 3.5.

8. NGUYỄN GIA HUY.

- Absence:  $-2 - 2 - 2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5$ .
- Early attendance:  $0.5 + 1$  (eval func)  $+ 1.5 + 2 + 2 + 2.5 + 1 + 0.5$ .
- Midterm: 5.5.

9. PHẠM LÂM GIA KHÁNH.

- Absence:  $-2 - 2$ .
- Early attendance:  $0.5 + 0.5$ .
- Late: 15 mins.
- Bonus:  $0.5 + 0.5 + 1 + 1.5 + 2 + 1.5 + 1 + 2$ .
- Midterm: 5.5.

10. PHẠM XUÂN KHÁNH.

- Absence:  $-2 - 1 - 2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5$
- Late:  $15 + 30$  mins.
- Bonus:  $2 + 1 + 1.5 + 0.5 + 1 + 1.5 + 1 + 2 + 0.5 + 0.5 + 1 + 1 + 1 + 1$ .
- Midterm: 10.25.

11. BÙI ĐỨC KHOA.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 2 + 1$  (eval func)  $+ 1.5 + 0.5 + 1.5 + 2 + 0.5 + 1 + 1$ .
- Midterm: 3.

12. TRẦN VŨ NGUYỄN KHÔI.

- Absence:  $-1 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Late: 20 mins.
- Bonus:  $3 + 2 + 2 + 1 + 1.5 + 1 + 1.5 + 1 + 1.5 + 2 + 2$  (near perfect)  $+ 2 + 2.5 + 0.5 + 1$  (Fib)  $+ 0.5 + 0.5 + 1 + 1$  (sort str).
- Midterm: 5.25.

13. VŨ THỊ NGỌC LAN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2.5 + 2 + 2 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5 + 1 + 1.5 + 2 + 2 + 2.5 + 1 + 0.5 + 1 + 2 + 3$ .
- Midterm: 10.5.

14. TRẦN VĂN LÊN.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 2 + 2 + 2.5 + 2.5 + 1 + 1.5 + 1 + 1 + 1.5 + 1$  (eval func)  $+ 1.5 + 2 + 2 + 2.5 + 1 + 0.5 + 1.5 + 2 + 1.5 + 0.5 + 0.5 + 1 + 1 + 1$  (prime Fibo).
- Midterm: 4.

15. THÁI ANH NHẬT THIÊN LONG.

- Absence:  $-2 - 2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2 + 2 + 2.5 + 1.5 + 1$ .
- Midterm: 7.5.

16. LÊ NGUYỄN BẢO NGỌC. Tristy.

- Absence:  $-2 - 1 - 2 - 2 - 2 - 2$ .
- Late:  $15 + 15 + 10 + 92$  mins.
- Bonus:  $1 + 1.5 + 0.5 + 1 + 1.5 + 1 + 1.5 + 2 + 1.5 + 2$  (Pascal triangle)  $+ 0.5 + 1 + 1 + 1$  (prime Fibo).
- Midterm: 9.75.

17. LÊ HỒNG NGỌC.

- Absence:  $-2 - 1$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2 + 2.5 + 1$  (eval func)  $+ 1.5 + 2 + 2 + 0.5 + 1$  (Fib)  $+ 2.5 + 1.5 + 2 + 1 + 0.5 + 0.5 + 1 + 1$  (prime Fibo)  $+ 1$  (sort str)  $+ 1$ .
- Midterm: 8.75.

18. NGUYỄN HỮU NHÂN.

- Absence:  $-2 - 2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 1.5 + 2 + 0.5 + 0.5 + 1 + 1 + 1 + 1 + 1 + 2$ .
- Late:  $15 + 15$  mins.
- Midterm: 3.5.

19. LÂM THIÊN NHÂN.

- Absence:  $-2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2.5 + 1 + 1$ .
- Midterm: 5.

20. PHẠM MINH NHẬT.

- Absence: -2
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1.5 + 2 + 2 + 2.5 + 1 + 1.5 + 2 + 0.5 + 1 + 1.5 + 1$ .
- Midterm: 6.75.

21. PHẠM QUỲNH NHƯ.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1$  (eval func)  $+ 2$ .
- Midterm: 8.25.

22. NGUYỄN NGỌC QUỲNH NHƯ.

- Absence:  $-2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Midterm: 8.

23. ĐOÀN TRƯỞNG THIÊN PHONG.

- Absence:  $-2 - 2$ .
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Midterm: 7.

24. HỒ TẤN TÀI.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1.5 + 2 + 2 + 1 + 0.5 + 1 + 1 + 1.5 + 2 + 1.5$ .
- Late:  $10 + 20 + 15 + 43$  mins.
- Midterm: 10.

25. HỒ QUỐC THÀNH.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $1 + 1.5 + 1 + 1 + 1.5 + 1 + 0.5 + 1 + 2$ .
- Midterm: 4.5.

26. NGUYỄN THỊ MINH THƯ.

- Absence: -2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2.
- Midterm: 0.

27. ĐỖ THỊ HẢI TÌNH.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $2 + 2 + 2.5 + 1 + 1.5 + 0.5 + 1 + 1.5 + 1 + 1.5 + 2 + 0.5$ .
- Midterm: 9.75.

28. VÕ ĐOÀN THÁI TOÀN.

- Absence: -2.
- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$ .
- Bonus:  $0.5 + 2 + 2 + 1 + 0.5 + 1 + 1 + 1.5 + 2 + 2.5 + 0.5 + 1$ .
- Midterm: 9.

29. TRẦN QUỐC TRUNG.

- Early attendance:  $0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5 + 0.5$
- Bonus:  $0.5 + 2 + 2 + 2.5 + 1 + 0.5 + 1.5 + 1 + 1.5 + 2 + 0.5 + 1$ .
- Midterm: 8.25.

## 6 Olympic Tin OLP ICPC

1. ĐOÀN NGUYỄN ĐĂNG KHOA [DNDK]. K3.

- Bonus: 0.5 (weird alg) + 0.5 (miss number) + 0.5 (repetition) + 0.5 (increase array) + 0.5 (permutation) + 0.5 (num spiral) + 0.5 (bit string) + 0.5 (trailing zero) + 0.5 (coin pile) + 0.5 (IMO2007P5) + 0.5 (hangover) + 0.5 (sum) + 0.5 (ugly number) + 0.5 (speed limit) + 0.5 (self num) + 0.5 (gold coin) + 0.25 ( $3n + 1$  prob) + 0.5 (Hanoi tower).

2. ĐỖ ANH KIẾT [DAK].

- Bonus: 0.5 (virus) + 1 (count rooms) + 1 (dice) + 1.5 (shortest route I) + 1 (distribute apple) + 3 (permutation order) + 0.25 (trailing zero) + 0.5 (Raab game) + 2.5 (IMO2007P3) + 0.25 (hangover) + 1.5 (count bit) + 0.75 (grid color I).

3. TRẦN QUANG SƠN [TQS]. K3.

- Bonus:  $0.5 + 1$  (prime) + 1 (houseboat) + 0.5 (weird alg) + 0.5 (miss number) + 0.5 (repetition) + 0.5 (increase array) + 0.5 (num spiral) + 0.5 (bit string) + 0.5 (trailing 0) + 0.5 (coin pile) + 0.5 (IMO2007P5) + 0.5 (speed limit) + 0.5 (ride to school) + 0.5 (self num) + 0.5 (bee) + 0.5 (gold coin) + 0.25 ( $3n + 1$  prob) + 0.5 (Pascal lib) + 0.5 (tribonacci) + 0.25 (divisor game).

4. PHẠM ĐĂNG HOÀNG THIÊN [PDHT]. K3.

- Bonus:  $0.5 + 1$  (houseboat) + 2 (remove digit) + 1.5 (next prime) + 2 (Christmas party).

## 7 Miscellaneous