

## เอกสารอ้างอิง

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ภาคผนวก ก.

วิธีการเตรียมน้ำขุ่นสังเคราะห์จากดินคาโอลิน

นำผงดินคาโอลินมาละลายในน้ำประปาให้มีความเข้มข้นสูงๆ (มากกว่า 5,000 มก./ล.) ในถังขนาด 200 ลิตร ทิ้งให้ตกตะกอนอย่างน้อย 2 ชั่วโมงแล้วจึงตักน้ำคิบบริเวณผิวน้ำมาผสมกับน้ำประปาในถังขนาด 500 ลิตร จนน้ำในถังมีความขุ่นเท่ากับ 50 NTU ตามต้องการ



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ภาคผนวก ข.

ผลการทดลองการก่อเม็ดตะกอน โดยสารส้ม

ค่าความขุ่นของน้ำหลังการบำบัด (NTU) ที่เวลาต่างๆ

การทดลองชุดที่ 1

(ความเร็วน้ำไหลขึ้น 30 ซม./นาที, ความเร็วใบพัด 5 รอบ/นาที)

| Alum (มก./ล.)<br>A-PE (มก./ล.)<br>เวลา (ชม.) | 5    |     |     | 10  |      |     | 20   |      |      | 30   |      |      |     |      |      |      |
|--|------|-----|-----|-----|------|-----|------|------|------|------|------|------|-----|------|------|------|
|  | 0.05 | 0.1 | 0.2 | 0.3 | 0.05 | 0.1 | 0.2  | 0.3  | 0.05 | 0.1  | 0.2  | 0.3  |     |      |      |      |
| 0.5  | 800  | 770 | 360 | 86  | 900  | 720 | 220  | 73   | 800  | 230  | 95   | 14   | 700 | 630  | 88   | 6    |
| 1  | 42   | 32  | 3.2 | 1.9 | 14   | 7.8 | 2.6  | 1.3  | 6    | 2.1  | 1.8  | 0.58 | 4.5 | 1.8  | 0.76 | 0.73 |
| 2  | 8.8  | 3.3 | 2.4 | 1.4 | 4.5  | 2.1 | 0.94 | 0.8  | 2.4  | 0.6  | 0.43 | 0.4  | 1.5 | 0.56 | 0.44 | 0.4  |
| 3  | 5.6  | 3.3 | 2   | 1.6 | 3.7  | 1.8 | 0.95 | 0.76 | 1.7  | 0.48 | 0.4  | 0.38 | 1.1 | 0.38 | 0.44 | 0.2  |
| 4  | 5.3  | 2.8 | 1.8 | 1   | 3.7  | 1.4 | 1    | 0.64 | 1.7  | 0.48 | 0.4  | 0.42 | 1   | 0.36 | 0.2  | 0.2  |
| 5  | 4.9  | 2.6 | 1.8 | 1   | 3.7  | 1.4 | 0.8  | 0.6  | 1.7  | 0.46 | 0.4  | 0.4  | 1.1 | 0.36 | 0.18 | 0.18 |
| 6  | 4.9  | 2.6 | 1.7 | 1   | 3.7  | 1.4 | 0.77 | 0.6  | 1.7  | 0.46 | 0.4  | 0.38 | 1.1 | 0.36 | 0.18 | 0.18 |

การทดลองชุดที่ 2  
 ความเร็วน้ำไหลชั้น 30 ซม./นาที, ความเร็วใบพัด 10 รอบ/นาที)

| Alum (มก./ล.)<br>A-PE(มก./ล.)<br>เวลา(ชม.) | 5    |     |     | 10  |      |     | 20   |     |      | 30  |      |      |     |      |      |      |
|--|------|-----|-----|-----|------|-----|------|-----|------|-----|------|------|-----|------|------|------|
|  | 0.05 | 0.1 | 0.2 | 0.3 | 0.05 | 0.1 | 0.2  | 0.3 | 0.05 | 0.1 | 0.2  | 0.3  |     |      |      |      |
| 0.5  | 900  | 820 | 88  | 48  | 820  | 690 | 77   | 45  | 800  | 590 | 63   | 20   | 720 | 560  | 62   | 9.5  |
| 1  | 80   | 6.4 | 2   | 1.6 | 80   | 5.2 | 2.3  | 1.5 | 25   | 2.3 | 2.1  | 0.95 | 13  | 2.1  | 1.8  | 0.95 |
| 2  | 7.8  | 4   | 2   | 1.4 | 7.1  | 4.1 | 1    | 0.9 | 4.8  | 1.7 | 1.5  | 0.65 | 5   | 1.7  | 1.5  | 0.65 |
| 3  | 6.4  | 2.9 | 2   | 1.3 | 4.5  | 2   | 1    | 0.8 | 3.4  | 1.4 | 0.42 | 0.4  | 2.5 | 0.65 | 0.42 | 0.63 |
| 4  | 6.4  | 2.8 | 1.4 | 1.3 | 4    | 2   | 1    | 0.8 | 3.4  | 1   | 0.4  | 0.39 | 2.5 | 0.35 | 0.4  | 0.36 |
| 5  | 6.4  | 2.8 | 1.4 | 1.3 | 3.8  | 2   | 0.9  | 0.8 | 3.4  | 1   | 0.4  | 0.39 | 2.5 | 0.35 | 0.35 | 0.28 |
| 6  | 6.4  | 2.8 | 1.4 | 1.3 | 4    | 2   | 0.89 | 0.8 | 3.4  | 1   | 0.4  | 0.39 | 2.5 | 0.35 | 0.35 | 0.27 |



การทดลองชุดที่ 4  
 ความเร็วน้ำไหลขึ้น 40 ซม/นาท, ความเร็วไหลตัด 5 รอบ/นาท)

| Alum (มก./ล.)<br>A-PE(มก./ล.)<br>เวลา(ชม.) | 5    |     |     | 10  |      |     | 20   |      |      | 30  |      |      |     |      |      |      |
|--|------|-----|-----|-----|------|-----|------|------|------|-----|------|------|-----|------|------|------|
|  | 0.05 | 0.1 | 0.2 | 0.3 | 0.05 | 0.1 | 0.2  | 0.3  | 0.05 | 0.1 | 0.2  | 0.3  |     |      |      |      |
| 0.5  | 870  | 590 | 150 | 65  | 570  | 530 | 370  | 130  | 800  | 540 | 210  | 6.5  | 720 | 370  | 350  | 320  |
| 1  | 9.8  | 5.8 | 2.2 | 1.4 | 14   | 3.7 | 2.1  | 0.77 | 4.6  | 4   | 0.82 | 0.56 | 4.5 | 2.4  | 0.72 | 0.7  |
| 2  | 8.2  | 3.6 | 1.9 | 1.1 | 6.1  | 2.4 | 0.92 | 0.71 | 3.7  | 2.1 | 0.43 | 0.46 | 3.9 | 0.55 | 0.39 | 0.35 |
| 3  | 7.6  | 3.2 | 1.8 | 1.1 | 6.1  | 2.3 | 0.8  | 0.62 | 3.7  | 1.7 | 0.42 | 0.4  | 3.6 | 0.54 | 0.35 | 0.35 |
| 4  | 7.6  | 3   | 1.8 | 1   | 5.7  | 1.8 | 0.8  | 0.61 | 3.7  | 0.6 | 0.41 | 0.41 | 3.6 | 0.47 | 0.2  | 0.2  |
| 5  | 7.5  | 2.8 | 1.8 | 1   | 5.2  | 1.9 | 0.8  | 0.61 | 3.7  | 0.5 | 0.41 | 0.4  | 2.5 | 0.38 | 0.2  | 0.2  |
| 6  | 7.5  | 2.7 | 1.8 | 1   | 5.2  | 1.8 | 0.8  | 0.61 | 3.7  | 0.5 | 0.41 | 0.4  | 2.4 | 0.38 | 0.2  | 0.2  |



การทดลองชุดที่ 5  
 ความเร็วน้ำไหลขึ้น 40 ซม./นาที, ความเร็วใบพัด 10 รอบ/นาที)

| Alum (มก./ล.)<br>A-PE(มก./ล.)<br>เวลา(ชม.) | 5    |     |     | 10  |      |     | 20   |      |      | 30  |      |      |
|--|------|-----|-----|-----|------|-----|------|------|------|-----|------|------|
|  | 0.05 | 0.1 | 0.2 | 0.3 | 0.05 | 0.1 | 0.2  | 0.3  | 0.05 | 0.1 | 0.2  | 0.3  |
| 0.5  | 550  | 480 | 84  | 43  | 770  | 530 | 42   | 29   | 740  | 420 | 20   | 16   |
| 1  | 18   | 4.1 | 2.5 | 1.3 | 7.6  | 7.7 | 2.1  | 0.82 | 26   | 3.1 | 1.8  | 0.52 |
| 2  | 7.9  | 3.7 | 2.1 | 1.2 | 7.6  | 3.2 | 0.94 | 0.75 | 5.2  | 2.3 | 0.5  | 0.42 |
| 3  | 7.5  | 3.6 | 2.1 | 1.3 | 7.3  | 3.2 | 0.92 | 0.75 | 5.2  | 2.8 | 0.45 | 0.42 |
| 4  | 7.5  | 2.9 | 1.4 | 1.3 | 6    | 2   | 0.9  | 0.76 | 3.7  | 1   | 0.45 | 0.4  |
| 5  | 7.5  | 2.8 | 1.3 | 1.3 | 6    | 1.8 | 0.9  | 0.76 | 3.5  | 1   | 0.44 | 0.39 |
| 6  | 7.5  | 2.8 | 1.4 | 1.3 | 6    | 1.9 | 0.9  | 0.76 | 3.5  | 1   | 0.45 | 0.39 |
|  |      |     |     |     |      |     |      |      |      | 830 | 540  | 29   |
|  |      |     |     |     |      |     |      |      |      | 5.2 | 2.2  | 3.7  |
|  |      |     |     |     |      |     |      |      |      | 3.8 | 0.8  | 0.48 |
|  |      |     |     |     |      |     |      |      |      | 4.5 | 0.8  | 0.41 |
|  |      |     |     |     |      |     |      |      |      | 2.6 | 0.42 | 0.37 |
|  |      |     |     |     |      |     |      |      |      | 2.5 | 0.4  | 0.28 |
|  |      |     |     |     |      |     |      |      |      | 2.5 | 0.4  | 0.28 |

การทดลองชุดที่ 6  
 ความเร็วน้ำไหลชั้น 40 ซม/นาท, ความเร็วใบพัด 15 รอบ/นาท)

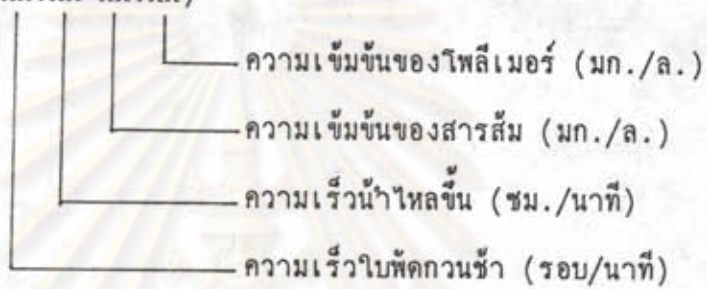
| Alum (มก./ล.)<br>A-PE(มก./ล.)<br>เวลา(ชม.) | 5    |     |     | 10  |      |     | 20  |      |      | 30   |      |      |     |     |      |      |
|--|------|-----|-----|-----|------|-----|-----|------|------|------|------|------|-----|-----|------|------|
|  | 0.05 | 0.1 | 0.2 | 0.3 | 0.05 | 0.1 | 0.2 | 0.3  | 0.05 | 0.1  | 0.2  | 0.3  |     |     |      |      |
| 0.5  | 730  | 360 | 275 | 50  | 800  | 480 | 42  | 270  | 525  | 360  | 33   | 5.9  | 820 | 450 | 140  | 4.3  |
| 1  | 16   | 6.2 | 4.9 | 1.6 | 7.8  | 5.9 | 3.5 | 0.9  | 4.9  | 2.3  | 0.8  | 0.48 | 4   | 2.4 | 0.98 | 0.43 |
| 2  | 7.9  | 4.5 | 1.6 | 1.1 | 5.4  | 4.4 | 1.3 | 0.8  | 2.7  | 0.75 | 0.5  | 0.37 | 4.3 | 1.1 | 0.5  | 0.35 |
| 3  | 8.3  | 3.4 | 1.4 | 1.1 | 6.3  | 2.8 | 1.3 | 0.73 | 2.5  | 0.73 | 0.38 | 0.37 | 3.1 | 1.1 | 0.4  | 0.3  |
| 4  | 8.5  | 3.2 | 1.4 | 1.1 | 5.6  | 3.1 | 1.3 | 0.8  | 2.9  | 0.67 | 0.38 | 0.33 | 2.6 | 0.5 | 0.4  | 0.33 |
| 5  | 8.5  | 3.4 | 1.3 | 1.1 | 6.3  | 2   | 1.3 | 0.6  | 2.7  | 0.67 | 0.38 | 0.36 | 2.6 | 0.5 | 0.4  | 0.29 |
| 6  | 8.5  | 3.2 | 1.3 | 1.1 | 6.3  | 2   | 1.3 | 0.7  | 2.7  | 0.6  | 0.38 | 0.35 | 2.5 | 0.5 | 0.4  | 0.29 |

ภาคผนวก ค.

ผลการทดลองการก่อกำเนิดตะกอนโดยสารส้ม

ค่าความเร็วในการตกตะกอนของ เม็ดตะกอน (ชม./นาที) ที่เวลาและระดับต่าง ๆ กัน

(xx.xx-xx.xx)



การทดลองที่ 1

(5.30-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 29.542 | 47.885 | 48.387 | 52.038 | 55.452 | 56.285 | 57.581 |
| 60                      | 25.327 | 33.112 | 37.014 | 39.062 | 49.059 | 50.675 | 51.020 |
| 120                     | 21.337 | 26.737 | 36.742 | 37.174 | 38.167 | 39.708 | 42.016 |
| 150                     | 21.052 | 22.421 | 31.023 | 35.067 | 35.128 | 39.113 | 39.370 |

การทดลองที่ 2  
(5.30-5.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 52.863 | 57.361 | 63.157 | 65.717 | 65.934 | 66.518 | 68.493 |
| 60                      | 37.570 | 37.831 | 40.000 | 44.345 | 47.961 | 53.956 | 60.790 |
| 120                     | 28.355 | 31.628 | 33.860 | 35.087 | 39.682 | 42.223 | 43.923 |
| 150                     | 26.408 | 26.536 | 31.678 | 33.879 | 38.022 | 39.551 | 43.541 |

การทดลองที่ 3  
(5.30-5.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 59.288 | 60.851 | 65.146 | 65.934 | 66.371 | 70.339 | 72.463 |
| 60                      | 45.941 | 54.200 | 54.995 | 55.248 | 65.146 | 65.502 | 65.861 |
| 120                     | 42.105 | 43.103 | 43.699 | 44.742 | 46.620 | 52.356 | 62.959 |
| 150                     | 33.860 | 41.011 | 42.492 | 43.103 | 45.766 | 47.885 | 54.495 |

## การทดลองที่ 4

(5.30-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 49.504 | 68.571 | 71.428 | 72.639 | 75.282 | 79.260 | 82.417 |
| 60                      | 43.731 | 50.804 | 53.619 | 59.288 | 60.000 | 69.605 | 69.767 |
| 120                     | 39.267 | 47.505 | 47.732 | 48.038 | 53.333 | 59.820 | 65.502 |
| 150                     | 38.338 | 42.105 | 43.321 | 44.052 | 44.977 | 45.731 | 46.082 |

## การทดลองที่ 5

(5.30-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 28.571 | 51.502 | 64.034 | 65.502 | 65.934 | 65.934 | 66.445 |
| 60                      | 28.011 | 42.046 | 47.169 | 50.675 | 53.475 | 54.298 | 54.495 |
| 120                     | 25.962 | 32.858 | 42.372 | 45.731 | 48.979 | 49.342 | 49.423 |
| 150                     | 22.115 | 32.102 | 38.314 | 43.956 | 44.576 | 47.656 | 48.622 |

## การทดลองที่ 6

(5.30-10.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 56.657 | 56.818 | 62.305 | 68.493 | 74.441 | 79.051 | 80.000 |
| 60                      | 42.765 | 44.742 | 45.941 | 49.958 | 50.675 | 68.807 | 73.529 |
| 120                     | 40.788 | 43.933 | 44.150 | 45.351 | 45.941 | 46.911 | 49.545 |
| 150                     | 36.144 | 41.208 | 41.322 | 44.943 | 45.317 | 46.082 | 46.583 |

## การทดลองที่ 7

(5.30-10.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 47.770 | 49.342 | 66.006 | 71.428 | 81.300 | 82.758 | 84.985 |
| 60                      | 45.489 | 46.153 | 56.338 | 49.751 | 54.200 | 54.446 | 55.504 |
| 120                     | 44.247 | 44.444 | 46.838 | 49.464 | 53.428 | 53.956 | 54.945 |
| 150                     | 34.965 | 44.020 | 44.247 | 48.622 | 49.342 | 51.413 | 53.050 |

การทดลองที่ 8  
(5.30-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.350 | 63.357 | 74.074 | 74.906 | 76.824 | 93.167 | 93.896 |
| 60                      | 44.543 | 50.505 | 58.195 | 66.152 | 67.796 | 73.800 | 74.719 |
| 120                     | 40.760 | 47.393 | 47.430 | 58.765 | 60.728 | 63.157 | 63.761 |
| 150                     | 37.429 | 41.928 | 44.642 | 47.058 | 55.658 | 57.088 | 58.708 |

การทดลองที่ 9  
(5.30-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 41.379 | 42.704 | 42.826 | 44.642 | 44.776 | 46.838 | 47.206 |
| 60                      | 33.917 | 36.188 | 36.297 | 36.496 | 36.719 | 40.187 | 40.322 |
| 120                     | 32.930 | 34.110 | 34.423 | 34.642 | 34.662 | 34.883 | 38.935 |
| 150                     | 25.199 | 25.359 | 27.063 | 27.985 | 28.999 | 29.955 | 31.645 |

## การทดลองที่ 10

(5.30-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 36.496 | 46.692 | 48.154 | 53.475 | 55.248 | 64.864 | 65.359 |
| 60                      | 34.168 | 34.822 | 39.656 | 41.753 | 53.050 | 53.956 | 57.526 |
| 120                     | 30.364 | 33.039 | 38.387 | 38.684 | 45.489 | 45.941 | 46.118 |
| 150                     | 30.272 | 30.349 | 34.364 | 35.885 | 44.543 | 45.283 | 45.420 |

## การทดลองที่ 11

(5.30-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.115 | 49.464 | 55.350 | 60.667 | 62.370 | 70.921 | 72.028 |
| 60                      | 42.016 | 47.169 | 47.393 | 48.231 | 49.342 | 49.875 | 55.350 |
| 120                     | 33.277 | 45.731 | 46.082 | 46.082 | 48.154 | 49.545 | 52.173 |
| 150                     | 27.752 | 30.565 | 41.095 | 41.237 | 44.345 | 45.317 | 45.766 |



## การทดลองที่ 12

(5.30-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.970 | 65.717 | 68.571 | 78.431 | 80.862 | 84.388 | 85.348 |
| 60                      | 42.492 | 45.941 | 52.585 | 70.339 | 70.339 | 71.090 | 73.800 |
| 120                     | 38.387 | 43.258 | 46.403 | 55.350 | 59.701 | 59.760 | 60.851 |
| 150                     | 33.039 | 36.452 | 42.979 | 47.694 | 49.019 | 52.219 | 54.249 |

## การทดลองที่ 13

(5.30-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 34.423 | 36.188 | 41.637 | 42.553 | 49.464 | 49.710 | 49.751 |
| 60                      | 27.560 | 30.627 | 30.226 | 34.344 | 36.991 | 37.359 | 37.476 |
| 120                     | 26.714 | 27.972 | 30.120 | 33.039 | 34.843 | 35.587 | 35.906 |
| 150                     | 26.155 | 26.833 | 29.761 | 29.955 | 30.880 | 31.413 | 31.813 |

## การทดลองที่ 14

(5.30-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 43.227 | 52.863 | 53.956 | 58.195 | 61.538 | 62.240 | 62.827 |
| 60                      | 38.634 | 39.708 | 46.583 | 51.858 | 58.365 | 59.347 | 59.642 |
| 120                     | 35.545 | 37.950 | 41.724 | 48.192 | 49.875 | 50.462 | 54.844 |
| 150                     | 27.713 | 31.897 | 36.363 | 38.709 | 38.986 | 39.318 | 40.650 |

## การทดลองที่ 15

(5.30-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 53.050 | 56.764 | 59.820 | 63.559 | 64.655 | 66.006 | 74.441 |
| 60                      | 40.650 | 47.808 | 48.740 | 50.000 | 50.933 | 52.724 | 58.195 |
| 120                     | 35.608 | 40.677 | 43.827 | 45.766 | 50.420 | 51.502 | 57.636 |
| 150                     | 32.751 | 37.290 | 40.241 | 43.956 | 45.592 | 46.082 | 49.586 |

## การทดลองที่ 16

(5.30-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.154 | 53.191 | 60.180 | 66.006 | 67.264 | 70.505 | 72.202 |
| 60                      | 42.765 | 48.348 | 58.939 | 64.864 | 65.861 | 66.445 | 67.720 |
| 120                     | 42.016 | 45.696 | 50.293 | 53.003 | 53.333 | 63.626 | 65.717 |
| 150                     | 41.637 | 42.857 | 44.676 | 45.420 | 47.543 | 48.979 | 49.710 |

## การทดลองที่ 17

(10.30-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 43.636 | 51.194 | 56.179 | 72.289 | 73.982 | 75.376 | 76.824 |
| 60                      | 33.613 | 40.160 | 43.509 | 43.923 | 46.656 | 49.180 | 49.545 |
| 120                     | 22.892 | 37.429 | 39.840 | 41.379 | 43.541 | 45.420 | 46.082 |
| 150                     | 22.779 | 33.994 | 39.814 | 41.011 | 42.283 | 43.604 | 44.510 |

## การทดลองที่ 18

(10.30-5.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 52.493 | 66.889 | 73.529 | 77.619 | 83.102 | 83.217 | 91.883 |
| 60                      | 44.313 | 47.656 | 53.097 | 54.249 | 55.147 | 55.970 | 56.550 |
| 120                     | 42.918 | 46.692 | 50.804 | 51.020 | 52.497 | 54.545 | 55.710 |
| 150                     | 35.087 | 41.465 | 42.553 | 43.956 | 45.351 | 47.355 | 54.054 |

## การทดลองที่ 19

(10.30-5.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 58.365 | 61.728 | 67.873 | 72.463 | 74.812 | 82.417 | 84.985 |
| 60                      | 58.027 | 47.058 | 50.675 | 51.590 | 54.397 | 58.881 | 61.919 |
| 120                     | 38.634 | 45.592 | 47.393 | 50.000 | 53.333 | 54.995 | 59.640 |
| 150                     | 29.542 | 38.461 | 41.124 | 44.543 | 49.140 | 50.505 | 51.635 |

การทดลองที่ 20  
(10.30-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 52.585 | 57.971 | 75.949 | 83.798 | 86.455 | 89.418 | 89.686 |
| 60                      | 49.342 | 51.457 | 58.365 | 59.288 | 65.502 | 66.518 | 70.339 |
| 120                     | 47.281 | 48.348 | 53.475 | 54.151 | 55.045 | 59.230 | 60.180 |
| 150                     | 31.705 | 42.492 | 45.941 | 46.082 | 47.732 | 49.627 | 58.139 |

การทดลองที่ 21  
(10.30-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 45.766 | 51.590 | 59.940 | 61.162 | 62.761 | 68.337 | 69.767 |
| 60                      | 38.022 | 39.344 | 41.293 | 47.770 | 48.740 | 49.586 | 49.958 |
| 120                     | 32.137 | 36.787 | 39.577 | 41.493 | 41.841 | 41.870 | 42.704 |
| 150                     | 29.168 | 31.268 | 32.822 | 36.968 | 40.404 | 40.788 | 41.011 |

## การทดลองที่ 22

(10.30-10.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 44.776 | 65.717 | 68.259 | 72.202 | 83.449 | 85.227 | 93.750 |
| 60                      | 43.321 | 49.833 | 53.763 | 57.803 | 63.559 | 63.761 | 64.724 |
| 120                     | 39.011 | 46.692 | 51.238 | 56.603 | 59.230 | 59.464 | 59.940 |
| 150                     | 36.297 | 37.926 | 41.035 | 45.558 | 45.941 | 49.094 | 52.956 |

## การทดลองที่ 23

(10.30-10.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 61.099 | 64.655 | 70.011 | 82.758 | 86.083 | 87.976 | 88.365 |
| 60                      | 45.592 | 49.099 | 57.471 | 58.536 | 61.791 | 62.434 | 66.225 |
| 120                     | 40.760 | 48.387 | 53.475 | 53.619 | 58.139 | 58.536 | 62.630 |
| 150                     | 31.217 | 43.923 | 45.180 | 49.342 | 50.761 | 53.908 | 56.338 |

การทดลองที่ 24

(10.30-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 56.925 | 65.717 | 72.463 | 75.853 | 83.102 | 89.686 | 97.087 |
| 60                      | 48.115 | 55.401 | 56.285 | 65.717 | 71.599 | 73.800 | 80.862 |
| 120                     | 44.313 | 47.694 | 55.504 | 61.538 | 70.093 | 75.376 | 78.328 |
| 150                     | 37.641 | 46.153 | 47.885 | 49.885 | 50.547 | 53.619 | 66.889 |

การทดลองที่ 25

(10.30-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 38.486 | 41.379 | 42.523 | 43.258 | 48.465 | 50.420 | 53.956 |
| 60                      | 26.338 | 28.476 | 39.920 | 40.677 | 44.543 | 44.709 | 46.656 |
| 120                     | 24.937 | 25.940 | 27.235 | 39.577 | 42.523 | 42.796 | 43.446 |
| 150                     | 24.885 | 24.927 | 27.112 | 38.935 | 39.215 | 39.708 | 40.677 |

## การทดลองที่ 26

(10.30-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 40.000 | 45.283 | 57.692 | 62.959 | 67.796 | 73.081 | 74.165 |
| 60                      | 34.168 | 34.344 | 48.622 | 50.251 | 54.200 | 54.644 | 55.452 |
| 120                     | 32.537 | 34.302 | 43.956 | 46.692 | 46.875 | 47.206 | 47.808 |
| 150                     | 31.413 | 32.258 | 37.197 | 43.258 | 46.047 | 46.838 | 47.505 |

## การทดลองที่ 27

(10.30-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 54.545 | 59.113 | 61.791 | 62.176 | 64.446 | 65.502 | 67.567 |
| 60                      | 45.283 | 46.656 | 51.063 | 55.658 | 59.055 | 59.940 | 61.601 |
| 120                     | 39.682 | 45.662 | 48.859 | 52.128 | 53.523 | 55.917 | 59.230 |
| 150                     | 38.314 | 43.956 | 47.169 | 51.635 | 52.219 | 54.347 | 55.452 |



## การทดลองที่ 28

(10.30-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.348 | 52.447 | 68.104 | 71.856 | 76.238 | 80.862 | 84.388 |
| 60                      | 45.836 | 50.933 | 60.483 | 62.565 | 63.357 | 66.225 | 67.264 |
| 120                     | 42.765 | 47.169 | 50.000 | 55.813 | 58.195 | 59.820 | 61.037 |
| 150                     | 37.807 | 41.208 | 45.941 | 47.505 | 49.545 | 50.590 | 53.285 |

## การทดลองที่ 29

(10.30-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 32.697 | 51.768 | 52.863 | 59.055 | 62.047 | 64.239 | 65.861 |
| 60                      | 27.688 | 28.409 | 36.101 | 38.022 | 38.634 | 39.395 | 40.733 |
| 120                     | 26.893 | 27.137 | 35.294 | 36.231 | 36.787 | 37.105 | 39.113 |
| 150                     | 22.692 | 24.580 | 31.168 | 32.000 | 33.204 | 36.231 | 37.359 |

## การทดลองที่ 30

(10.30-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 35.356 | 51.768 | 63.157 | 69.044 | 71.428 | 79.681 | 80.428 |
| 60                      | 27.112 | 30.769 | 44.543 | 46.856 | 47.885 | 48.740 | 49.342 |
| 120                     | 23.894 | 28.395 | 43.956 | 43.988 | 45.011 | 45.385 | 46.583 |
| 150                     | 23.734 | 24.691 | 37.783 | 43.352 | 44.085 | 45.045 | 45.941 |

## การทดลองที่ 31

(10.30-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 47.581 | 49.220 | 59.464 | 60.544 | 60.851 | 62.305 | 70.588 |
| 60                      | 45.078 | 47.732 | 48.038 | 50.505 | 53.667 | 55.045 | 55.248 |
| 120                     | 31.712 | 40.431 | 42.583 | 45.283 | 45.489 | 47.505 | 51.457 |
| 150                     | 30.287 | 31.847 | 34.110 | 38.387 | 39.761 | 41.011 | 45.731 |

## การทดลองที่ 32

(10.30-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 52.910 | 58.536 | 61.162 | 72.202 | 72.992 | 74.906 | 79.681 |
| 60                      | 44.150 | 52.173 | 54.397 | 56.818 | 62.818 | 64.377 | 66.225 |
| 120                     | 36.297 | 42.674 | 48.000 | 50.505 | 51.194 | 52.893 | 53.763 |
| 150                     | 33.975 | 40.160 | 41.180 | 47.058 | 47.422 | 47.581 | 47.885 |

## การทดลองที่ 33

(15.30-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.270 | 55.147 | 68.807 | 71.856 | 72.463 | 72.815 | 75.662 |
| 60                      | 39.682 | 46.475 | 46.620 | 48.231 | 48.979 | 49.019 | 50.335 |
| 120                     | 27.198 | 39.551 | 40.871 | 44.444 | 46.728 | 47.318 | 49.342 |
| 150                     | 27.088 | 39.267 | 40.595 | 42.949 | 44.052 | 45.766 | 46.911 |

## การทดลองที่ 34

(15.30-5.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.970 | 63.424 | 63.965 | 72.463 | 81.743 | 88.888 | 96.308 |
| 60                      | 45.180 | 49.833 | 56.127 | 59.642 | 63.357 | 72.727 | 73.529 |
| 120                     | 35.231 | 41.465 | 53.811 | 54.545 | 57.471 | 57.636 | 59.582 |
| 150                     | 35.005 | 41.293 | 47.846 | 48.701 | 51.325 | 52.264 | 53.715 |

## การทดลองที่ 35

(15.30-5.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 46.692 | 54.694 | 66.666 | 73.260 | 75.282 | 76.824 | 77.220 |
| 60                      | 41.039 | 51.590 | 59.820 | 64.446 | 65.717 | 66.006 | 66.518 |
| 120                     | 38.784 | 40.080 | 53.191 | 53.908 | 54.397 | 59.288 | 62.111 |
| 150                     | 34.052 | 36.563 | 41.608 | 46.728 | 47.543 | 51.150 | 56.232 |

## การทดลองที่ 36

(15.30-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.917 | 62.565 | 65.789 | 76.628 | 80.321 | 80.971 | 82.987 |
| 60                      | 43.731 | 53.908 | 61.538 | 69.605 | 75.282 | 76.142 | 84.269 |
| 120                     | 42.163 | 47.058 | 60.790 | 65.861 | 70.339 | 71.005 | 74.349 |
| 150                     | 34.965 | 38.634 | 52.539 | 56.338 | 59.347 | 59.642 | 59.940 |

## การทดลองที่ 37

(15.30-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.115 | 59.642 | 63.157 | 65.075 | 70.588 | 71.428 | 73.619 |
| 60                      | 39.190 | 46.260 | 48.979 | 50.125 | 54.894 | 55.147 | 58.027 |
| 120                     | 29.688 | 39.138 | 39.920 | 43.827 | 47.132 | 53.908 | 54.945 |
| 150                     | 25.806 | 33.670 | 36.991 | 37.267 | 41.928 | 42.674 | 49.342 |

## การทดลองที่ 38

(15.30-10.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 57.692 | 68.104 | 75.282 | 78.023 | 83.682 | 84.033 | 84.985 |
| 60                      | 55.299 | 56.497 | 62.047 | 63.157 | 64.239 | 64.516 | 67.643 |
| 120                     | 46.728 | 49.627 | 60.000 | 62.761 | 63.694 | 65.861 | 66.592 |
| 150                     | 42.492 | 47.058 | 57.306 | 59.288 | 60.851 | 62.370 | 65.717 |

## การทดลองที่ 39

(15.30-10.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 57.803 | 70.093 | 74.441 | 77.419 | 77.155 | 84.626 | 85.470 |
| 60                      | 53.667 | 55.147 | 61.162 | 68.571 | 69.524 | 72.727 | 74.441 |
| 120                     | 48.979 | 51.724 | 55.350 | 61.349 | 61.919 | 63.492 | 65.934 |
| 150                     | 45.385 | 46.511 | 49.627 | 50.761 | 51.194 | 51.502 | 53.003 |

## การทดลองที่ 40

(15.30-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 58.536 | 65.502 | 72.727 | 75.853 | 82.417 | 84.985 | 85.592 |
| 60                      | 53.191 | 55.096 | 60.000 | 64.102 | 68.337 | 69.686 | 71.090 |
| 120                     | 43.923 | 47.132 | 56.818 | 58.139 | 59.582 | 60.483 | 61.099 |
| 150                     | 37.641 | 45.351 | 49.342 | 50.505 | 52.128 | 53.763 | 54.446 |

## การทดลองที่ 41

(15.30-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 40.760 | 47.505 | 64.034 | 65.146 | 65.861 | 66.445 | 66.815 |
| 60                      | 39.499 | 42.164 | 47.770 | 50.933 | 51.457 | 51.813 | 53.571 |
| 120                     | 35.820 | 39.344 | 39.735 | 44.411 | 44.576 | 44.776 | 45.766 |
| 150                     | 34.443 | 34.843 | 38.338 | 39.682 | 40.485 | 41.067 | 42.194 |

## การทดลองที่ 42

(15.30-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 46.475 | 54.694 | 58.139 | 58.593 | 59.288 | 59.582 | 60.483 |
| 60                      | 45.180 | 51.063 | 51.590 | 55.197 | 55.917 | 56.232 | 58.139 |
| 120                     | 43.165 | 49.792 | 50.890 | 53.763 | 54.054 | 54.298 | 55.401 |
| 150                     | 31.779 | 42.313 | 42.979 | 48.270 | 49.545 | 49.958 | 50.462 |

## การทดลองที่ 43

(15.30-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 60.975 | 61.728 | 62.959 | 66.225 | 68.571 | 69.444 | 73.529 |
| 60                      | 55.452 | 60.975 | 61.664 | 61.728 | 62.434 | 65.217 | 66.225 |
| 120                     | 50.505 | 55.350 | 58.365 | 59.820 | 61.162 | 63.157 | 64.516 |
| 150                     | 44.742 | 47.505 | 50.251 | 51.635 | 53.050 | 54.054 | 54.397 |



## การทดลองที่ 44

(15.30-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 53.763 | 54.894 | 60.000 | 61.728 | 69.524 | 71.428 | 71.770 |
| 60                      | 47.885 | 51.325 | 55.350 | 56.550 | 58.083 | 62.176 | 63.291 |
| 120                     | 43.258 | 48.504 | 49.220 | 49.220 | 50.251 | 53.333 | 54.005 |
| 150                     | 37.783 | 44.345 | 48.859 | 49.342 | 49.668 | 50.335 | 50.505 |

## การทดลองที่ 45

(15.30-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 37.059 | 51.768 | 54.844 | 55.147 | 55.555 | 55.865 | 58.651 |
| 60                      | 29.910 | 35.671 | 36.474 | 37.593 | 37.783 | 37.950 | 38.659 |
| 120                     | 29.585 | 34.622 | 35.566 | 36.297 | 36.429 | 36.787 | 37.243 |
| 150                     | 26.223 | 31.729 | 34.168 | 34.482 | 34.822 | 35.169 | 35.523 |

การทดลองที่ 46  
(15.30-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 43.956 | 51.903 | 57.526 | 62.565 | 70.588 | 71.343 | 72.463 |
| 60                      | 37.735 | 40.485 | 42.857 | 44.843 | 47.318 | 48.115 | 49.545 |
| 120                     | 35.356 | 37.926 | 39.267 | 40.595 | 41.293 | 42.194 | 42.765 |
| 150                     | 28.790 | 31.678 | 35.026 | 35.128 | 38.240 | 38.860 | 39.577 |

การทดลองที่ 47  
(15.30-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 51.457 | 56.818 | 61.349 | 63.157 | 64.585 | 66.225 | 66.298 |
| 60                      | 48.622 | 53.050 | 56.444 | 57.803 | 58.708 | 59.347 | 59.820 |
| 120                     | 40.844 | 46.047 | 47.393 | 49.586 | 49.792 | 50.335 | 53.003 |
| 150                     | 28.024 | 43.891 | 46.828 | 47.058 | 47.543 | 48.348 | 49.504 |

## การทดลองที่ 48

(15.30-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 48.701 | 57.747 | 61.919 | 64.655 | 65.217 | 65.934 | 66.592 |
| 60                      | 48.115 | 56.444 | 58.027 | 60.180 | 63.424 | 64.864 | 66.006 |
| 120                     | 45.731 | 46.692 | 50.293 | 56.179 | 57.088 | 57.803 | 59.347 |
| 150                     | 35.885 | 42.100 | 42.674 | 49.751 | 50.890 | 53.475 | 53.908 |

## การทดลองที่ 49

(5.40-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 45.385 | 54.054 | 70.588 | 92.307 | 93.167 | 97.879 | 99.173 |
| 60                      | 37.220 | 41.379 | 49.342 | 53.144 | 54.249 | 59.230 | 59.347 |
| 120                     | 29.835 | 31.847 | 37.783 | 53.003 | 53.571 | 54.102 | 58.252 |
| 150                     | 28.763 | 28.873 | 36.697 | 48.348 | 48.582 | 49.916 | 53.956 |

## การทดลองที่ 50

(5.40-5.10)

| เวลา(ชม.) \ ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 65.573 | 70.093 | 74.719 | 75.282 | 77.720 | 99.337 | 112.78 |
| 60                     | 43.541 | 44.052 | 50.632 | 50.804 | 61.287 | 64.446 | 73.891 |
| 120                    | 38.634 | 39.577 | 43.763 | 47.430 | 48.192 | 59.405 | 73.529 |
| 150                    | 37.854 | 38.659 | 41.039 | 44.247 | 45.180 | 58.708 | 60.667 |

## การทดลองที่ 51

(5.40-5.20)

| เวลา(ชม.) \ ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 67.114 | 73.081 | 76.238 | 83.798 | 87.336 | 128.75 | 128.47 |
| 60                     | 52.724 | 53.097 | 60.728 | 64.034 | 66.666 | 91.463 | 92.449 |
| 120                    | 48.504 | 49.668 | 53.333 | 55.865 | 63.559 | 87.209 | 90.090 |
| 150                    | 39.499 | 42.826 | 53.619 | 54.249 | 55.045 | 60.851 | 65.717 |

## การทดลองที่ 52

(5.40-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 73.891 | 74.441 | 76.433 | 112.99 | 114.94 | 117.41 | 119.52 |
| 60                      | 57.859 | 59.405 | 66.152 | 67.114 | 71.343 | 90.634 | 112.99 |
| 120                     | 53.763 | 55.658 | 55.970 | 63.761 | 67.643 | 80.971 | 82.417 |
| 150                     | 51.325 | 54.102 | 54.995 | 60.667 | 64.794 | 74.349 | 80.428 |

## การทดลองที่ 53

(5.40-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 45.592 | 56.980 | 60.362 | 65.717 | 71.856 | 79.681 | 83.449 |
| 60                      | 39.062 | 50.933 | 55.813 | 56.657 | 61.538 | 62.959 | 65.645 |
| 120                     | 31.965 | 45.541 | 53.050 | 56.285 | 58.997 | 59.820 | 60.728 |
| 150                     | 31.397 | 38.119 | 51.903 | 53.475 | 55.762 | 58.027 | 58.593 |

## การทดลองที่ 54

(5.40-10.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 64.239 | 77.120 | 80.000 | 84.865 | 89.285 | 114.72 | 117.41 |
| 60                      | 45.731 | 47.058 | 58.881 | 63.559 | 71.090 | 75.000 | 77.120 |
| 120                     | 39.840 | 42.164 | 49.751 | 58.765 | 66.225 | 66.371 | 69.605 |
| 150                     | 35.460 | 36.991 | 42.402 | 52.770 | 61.349 | 62.111 | 65.717 |

## การทดลองที่ 55

(5.40-10.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 80.428 | 90.090 | 90.634 | 94.191 | 95.238 | 97.719 | 101.52 |
| 60                      | 64.655 | 75.282 | 77.821 | 81.632 | 82.644 | 84.626 | 85.348 |
| 120                     | 52.310 | 57.142 | 61.162 | 68.571 | 77.821 | 77.821 | 80.428 |
| 150                     | 49.586 | 53.956 | 67.761 | 70.588 | 70.921 | 72.992 | 77.021 |

## การทดลองที่ 56

(5.40-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 69.364 | 73.800 | 78.226 | 84.985 | 92.307 | 104.34 | 104.71 |
| 60                      | 56.657 | 57.636 | 71.428 | 81.967 | 84.985 | 89.285 | 93.167 |
| 120                     | 50.804 | 57.034 | 61.728 | 68.337 | 73.800 | 75.000 | 84.151 |
| 150                     | 50.804 | 56.232 | 59.288 | 65.861 | 65.934 | 73.349 | 74.074 |

## การทดลองที่ 57

(5.40-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 37.267 | 46.801 | 48.231 | 53.475 | 58.139 | 59.642 | 59.940 |
| 60                      | 24.057 | 27.309 | 30.518 | 33.167 | 33.222 | 35.067 | 35.231 |
| 120                     | 21.238 | 25.906 | 29.498 | 30.769 | 31.965 | 33.333 | 33.917 |
| 150                     | 21.074 | 22.564 | 28.235 | 29.083 | 31.397 | 31.578 | 31.965 |

## การทดลองที่ 58

(5.40-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 42.704 | 46.153 | 53.333 | 59.820 | 62.565 | 65.146 | 65.934 |
| 60                      | 32.930 | 33.994 | 35.756 | 40.513 | 52.447 | 56.550 | 57.581 |
| 120                     | 29.354 | 32.485 | 34.822 | 37.359 | 43.956 | 44.642 | 49.342 |
| 150                     | 26.408 | 30.816 | 33.130 | 34.403 | 40.349 | 42.553 | 44.510 |

## การทดลองที่ 59

(5.40-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 50.933 | 54.200 | 55.917 | 60.790 | 70.838 | 86.083 | 87.976 |
| 60                      | 47.885 | 49.342 | 51.325 | 54.444 | 56.285 | 64.377 | 66.592 |
| 120                     | 43.731 | 45.523 | 48.115 | 51.903 | 53.285 | 56.603 | 58.027 |
| 150                     | 33.888 | 40.187 | 43.134 | 42.643 | 48.979 | 54.495 | 56.818 |



## การทดลองที่ 60

(5.40-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 60.790 | 61.791 | 72.992 | 84.151 | 91.047 | 97.719 | 102.38 |
| 60                      | 53.667 | 58.997 | 61.538 | 71.942 | 75.566 | 77.821 | 84.388 |
| 120                     | 49.627 | 54.694 | 59.347 | 62.959 | 69.364 | 76.238 | 80.645 |
| 150                     | 48.622 | 50.000 | 51.457 | 57.306 | 61.099 | 72.202 | 73.170 |

## การทดลองที่ 61

(5.40-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 69.284 | 76.142 | 77.149 | 84.388 | 84.985 | 91.047 | 95.087 |
| 60                      | 51.724 | 52.724 | 54.495 | 58.765 | 66.592 | 68.649 | 72.028 |
| 120                     | 46.367 | 49.464 | 51.768 | 55.197 | 60.180 | 65.717 | 66.079 |
| 150                     | 44.052 | 46.620 | 49.301 | 53.475 | 55.658 | 58.651 | 59.820 |

## การทดลองที่ 62

(5.40-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 64.038 | 77.021 | 79.681 | 84.985 | 88.888 | 115.38 | 117.41 |
| 60                      | 45.731 | 47.095 | 58.823 | 63.157 | 71.005 | 74.906 | 77.120 |
| 120                     | 39.840 | 42.223 | 49.710 | 58.823 | 66.152 | 66.371 | 69.605 |
| 150                     | 35.481 | 37.037 | 42.342 | 52.724 | 61.349 | 63.157 | 66.445 |

## การทดลองที่ 63

(5.40-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 58.252 | 59.405 | 59.940 | 61.224 | 65.338 | 68.337 | 78.125 |
| 60                      | 51.903 | 56.925 | 58.139 | 59.347 | 60.120 | 65.146 | 70.339 |
| 120                     | 49.615 | 51.475 | 52.465 | 56.603 | 59.288 | 62.630 | 65.075 |
| 150                     | 46.656 | 49.504 | 50.933 | 54.151 | 57.306 | 59.523 | 61.791 |

## การทดลองที่ 64

(5.40-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 71.599 | 74.719 | 85.714 | 86.830 | 100.00 | 100.33 | 108.89 |
| 60                      | 60.851 | 65.430 | 66.079 | 68.493 | 71.174 | 75.471 | 86.206 |
| 120                     | 55.248 | 55.452 | 57.803 | 61.601 | 65.359 | 67.264 | 68.027 |
| 150                     | 47.206 | 49.751 | 51.768 | 58.708 | 60.851 | 65.717 | 66.518 |

## การทดลองที่ 65

(10.40-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 59.288 | 61.919 | 78.431 | 81.632 | 72.727 | 84.985 | 95.541 |
| 60                      | 34.863 | 42.223 | 42.765 | 55.658 | 59.230 | 62.761 | 64.308 |
| 120                     | 34.052 | 40.000 | 52.493 | 50.000 | 51.063 | 53.619 | 58.536 |
| 150                     | 31.364 | 35.294 | 35.693 | 36.787 | 37.429 | 45.941 | 49.504 |

## การทดลองที่ 66

(10.40-5.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 53.956 | 55.504 | 71.599 | 81.743 | 82.304 | 83.798 | 88.495 |
| 60                      | 47.581 | 49.751 | 49.833 | 54.200 | 55.813 | 57.971 | 58.708 |
| 120                     | 39.138 | 47.505 | 48.582 | 50.125 | 54.844 | 57.803 | 63.761 |
| 150                     | 32.858 | 35.820 | 44.150 | 49.423 | 50.675 | 51.457 | 54.446 |

## การทดลองที่ 67

(10.40-5.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 53.908 | 57.581 | 61.349 | 75.282 | 79.681 | 89.686 | 102.73 |
| 60                      | 50.804 | 57.142 | 57.471 | 57.471 | 62.959 | 79.365 | 84.985 |
| 120                     | 42.283 | 44.444 | 53.333 | 53.751 | 59.940 | 61.919 | 73.349 |
| 150                     | 47.058 | 47.244 | 51.194 | 53.763 | 54.005 | 56.179 | 58.708 |

## การทดลองที่ 68

(10.40-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 54.151 | 60.728 | 62.565 | 64.446 | 70.588 | 83.798 | 84.388 |
| 60                      | 46.260 | 56.388 | 60.913 | 63.559 | 64.446 | 78.636 | 78.843 |
| 120                     | 45.283 | 46.153 | 52.724 | 56.285 | 62.305 | 72.727 | 72.992 |
| 150                     | 35.971 | 46.367 | 46.153 | 51.457 | 60.790 | 72.904 | 72.992 |

## การทดลองที่ 69

(10.40-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 46.047 | 48.115 | 69.044 | 73.619 | 88.495 | 97.879 | 99.009 |
| 60                      | 37.950 | 39.973 | 43.227 | 45.283 | 46.948 | 49.958 | 52.863 |
| 120                     | 36.697 | 37.267 | 43.731 | 44.543 | 46.047 | 49.504 | 50.632 |
| 150                     | 30.379 | 31.562 | 32.822 | 42.223 | 43.446 | 49.342 | 54.102 |

## การทดลองที่ 70

(10.40-10.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.970 | 57.859 | 58.422 | 69.524 | 74.906 | 80.428 | 88.105 |
| 60                      | 43.731 | 43.891 | 43.923 | 45.180 | 58.708 | 62.959 | 65.005 |
| 120                     | 42.553 | 42.553 | 42.647 | 44.776 | 55.970 | 56.127 | 61.538 |
| 150                     | 40.458 | 40.241 | 40.567 | 41.551 | 44.052 | 48.000 | 49.792 |

## การทดลองที่ 71

(10.40-10.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 57.306 | 64.304 | 91.463 | 85.348 | 85.952 | 93.167 | 93.750 |
| 60                      | 55.147 | 55.813 | 55.504 | 73.891 | 63.157 | 70.093 | 74.441 |
| 120                     | 42.949 | 46.838 | 49.382 | 58.365 | 58.252 | 58.708 | 64.171 |
| 150                     | 41.724 | 45.696 | 48.979 | 53.965 | 52.910 | 58.881 | 59.347 |

## การทดลองที่ 72

(10.40-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 68.493 | 73.529 | 76.045 | 91.883 | 93.457 | 93.603 | 95.087 |
| 60                      | 59.940 | 64.446 | 67.340 | 70.339 | 71.090 | 84.985 | 91.883 |
| 120                     | 53.475 | 52.863 | 48.859 | 61.287 | 62.695 | 81.300 | 85.348 |
| 150                     | 51.238 | 51.063 | 48.270 | 52.585 | 60.913 | 61.099 | 75.662 |

## การทดลองที่ 73

(10.40-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 58.536 | 59.940 | 64.864 | 65.789 | 69.767 | 76.433 | 78.431 |
| 60                      | 42.105 | 42.765 | 45.180 | 46.260 | 49.586 | 54.054 | 54.545 |
| 120                     | 37.570 | 37.950 | 39.344 | 40.349 | 44.543 | 44.776 | 45.941 |
| 150                     | 28.436 | 37.059 | 38.192 | 38.314 | 39.113 | 41.095 | 41.237 |

## การทดลองที่ 74

(10.40-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 49.504 | 52.631 | 64.171 | 65.934 | 67.873 | 62.305 | 71.343 |
| 60                      | 46.620 | 44.642 | 47.058 | 57.971 | 62.305 | 67.114 | 68.415 |
| 120                     | 43.827 | 44.543 | 44.576 | 50.251 | 56.657 | 57.859 | 59.288 |
| 150                     | 36.652 | 40.431 | 41.551 | 48.231 | 49.220 | 41.293 | 44.910 |

## การทดลองที่ 75

(10.40-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 62.959 | 72.992 | 73.349 | 74.074 | 80.971 | 81.081 | 84.388 |
| 60                      | 52.770 | 58.365 | 65.288 | 67.720 | 74.441 | 74.534 | 80.106 |
| 120                     | 50.761 | 53.475 | 58.939 | 61.162 | 73.529 | 73.982 | 75.187 |
| 150                     | 50.761 | 52.173 | 52.539 | 54.495 | 56.980 | 61.349 | 62.176 |



## การทดลองที่ 76

(10.40-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 60.728 | 70.339 | 75.282 | 75.376 | 85.715 | 103.8  | 105.2  |
| 60                      | 49.875 | 52.310 | 63.559 | 74.906 | 75.000 | 77.120 | 86.455 |
| 120                     | 46.511 | 50.505 | 57.140 | 40.790 | 64.585 | 68.571 | 85.714 |
| 150                     | 46.475 | 50.933 | 52.083 | 55.970 | 59.347 | 61.099 | 70.257 |

## การทดลองที่ 77

(10.40-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 41.753 | 44.642 | 46.692 | 57.859 | 59.055 | 59.523 | 59.880 |
| 60                      | 31.578 | 31.948 | 32.537 | 33.222 | 35.356 | 35.778 | 36.036 |
| 120                     | 31.217 | 31.729 | 32.520 | 33.130 | 33.314 | 34.110 | 35.026 |
| 150                     | 28.653 | 28.735 | 31.729 | 32.822 | 33.057 | 33.783 | 33.860 |

## การทดลองที่ 78

(10.40-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 51.858 | 53.333 | 54.249 | 74.441 | 80.321 | 80.321 | 80.971 |
| 60                      | 46.948 | 47.505 | 48.740 | 63.829 | 63.965 | 64.102 | 66.592 |
| 120                     | 38.560 | 44.444 | 46.801 | 47.619 | 53.619 | 56.980 | 59.347 |
| 150                     | 35.294 | 36.652 | 41.666 | 41.841 | 49.710 | 50.933 | 56.818 |

## การทดลองที่ 79

(10.40-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 66.006 | 74.534 | 74.626 | 74.534 | 95.087 | 96.463 | 99.833 |
| 60                      | 55.299 | 56.285 | 57.636 | 65.502 | 78.028 | 80.106 | 85.959 |
| 120                     | 45.180 | 47.021 | 52.173 | 57.142 | 57.636 | 59.880 | 60.120 |
| 150                     | 41.666 | 42.670 | 46.801 | 48.820 | 54.200 | 54.249 | 55.710 |

## การทดลองที่ 80

(10.40-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.658 | 68.571 | 73.619 | 74.626 | 74.812 | 98.360 | 99.173 |
| 60                      | 49.875 | 49.958 | 54.151 | 63.761 | 68.337 | 79.365 | 79.515 |
| 120                     | 49.342 | 49.710 | 52.173 | 63.157 | 65.861 | 66.518 | 67.264 |
| 150                     | 41.011 | 42.372 | 49.958 | 55.658 | 58.479 | 60.728 | 61.162 |

## การทดลองที่ 81

(15.40-5.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 41.928 | 61.162 | 66.445 | 72.463 | 73.170 | 79.681 | 81.300 |
| 60                      | 38.314 | 42.105 | 48.154 | 52.447 | 56.497 | 57.306 | 57.471 |
| 120                     | 33.860 | 40.955 | 46.948 | 51.502 | 51.724 | 53.908 | 54.545 |
| 150                     | 33.594 | 39.344 | 43.165 | 48.387 | 48.543 | 52.585 | 52.724 |

## การทดลองที่ 82

(15.40-5.10)

| ระดับ(ชม.) \ เวลา(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 56.603 | 56.872 | 73.619 | 75.282 | 90.225 | 92.735 | 98.199 |
| 60                     | 43.041 | 53.475 | 56.127 | 61.919 | 65.789 | 66.518 | 68.027 |
| 120                    | 41.841 | 42.283 | 49.710 | 50.293 | 56.338 | 56.980 | 59.582 |
| 150                    | 35.842 | 40.650 | 42.765 | 43.956 | 44.609 | 47.281 | 47.732 |

## การทดลองที่ 83

(15.40-5.20)

| ระดับ(ชม.) \ เวลา(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 55.197 | 68.104 | 82.417 | 84.985 | 101.52 | 102.21 | 105.07 |
| 60                     | 45.385 | 46.656 | 56.338 | 62.370 | 77.720 | 78.740 | 82.872 |
| 120                    | 40.677 | 47.505 | 50.547 | 54.397 | 55.504 | 65.573 | 66.518 |
| 150                    | 38.240 | 44.216 | 44.345 | 46.153 | 47.318 | 49.464 | 49.916 |

## การทดลองที่ 84

(15.40-5.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 60.728 | 70.838 | 77.021 | 81.967 | 89.285 | 106.19 | 121.45 |
| 60                      | 48.504 | 65.075 | 65.573 | 66.371 | 74.165 | 82.417 | 87.463 |
| 120                     | 45.385 | 53.475 | 56.550 | 58.365 | 63.559 | 73.800 | 84.865 |
| 150                     | 40.402 | 50.251 | 55.452 | 56.818 | 60.728 | 63.761 | 68.027 |

## การทดลองที่ 85

(15.40-10.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 44.150 | 56.818 | 59.820 | 63.626 | 72.376 | 74.906 | 78.023 |
| 60                      | 28.409 | 33.557 | 36.036 | 45.146 | 45.801 | 48.622 | 59.288 |
| 120                     | 26.893 | 27.752 | 35.693 | 43.827 | 44.477 | 48.115 | 55.710 |
| 150                     | 26.773 | 26.929 | 35.294 | 35.398 | 36.652 | 42.194 | 48.000 |

## การทดลองที่ 86

(15.40-10.10)

| เวลา(ชม.) / ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 50.377 | 61.162 | 63.357 | 78.431 | 79.155 | 79.740 | 84.507 |
| 60                     | 36.363 | 38.634 | 42.105 | 46.047 | 52.631 | 53.763 | 65.502 |
| 120                    | 35.820 | 43.072 | 43.290 | 45.283 | 45.385 | 48.000 | 52.083 |
| 150                    | 26.373 | 31.071 | 34.403 | 38.412 | 40.322 | 45.836 | 47.656 |

## การทดลองที่ 87

(15.40-10.20)

| เวลา(ชม.) / ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                      | 49.220 | 67.643 | 72.992 | 87.719 | 91.883 | 92.165 | 99.009 |
| 60                     | 36.652 | 46.153 | 51.858 | 64.935 | 66.666 | 69.848 | 70.921 |
| 120                    | 36.360 | 44.247 | 50.377 | 52.585 | 56.338 | 57.859 | 70.093 |
| 150                    | 35.169 | 35.885 | 42.372 | 46.260 | 48.231 | 52.585 | 69.767 |

## การทดลองที่ 88

(15.40-10.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 60.544 | 77.120 | 85.714 | 88.495 | 91.463 | 106.57 | 118.57 |
| 60                      | 58.881 | 59.820 | 67.415 | 68.807 | 75.000 | 84.626 | 87.336 |
| 120                     | 49.586 | 50.000 | 60.975 | 60.975 | 63.761 | 68.337 | 83.102 |
| 150                     | 46.047 | 48.115 | 52.724 | 57.636 | 60.422 | 65.502 | 66.079 |

## การทดลองที่ 89

(15.40-20.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 56.657 | 57.471 | 63.761 | 68.337 | 68.415 | 71.005 | 71.428 |
| 60                      | 37.014 | 37.082 | 39.708 | 45.425 | 45.489 | 46.118 | 49.099 |
| 120                     | 31.055 | 33.388 | 39.395 | 41.379 | 42.194 | 44.182 | 46.547 |
| 150                     | 30.659 | 32.206 | 32.432 | 33.112 | 35.169 | 37.243 | 37.453 |

## การทดลองที่ 90

(15.40-20.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 41.011 | 43.227 | 53.667 | 47.961 | 63.694 | 92.307 | 93.603 |
| 60                      | 37.878 | 38.314 | 38.910 | 46.475 | 51.194 | 57.803 | 59.347 |
| 120                     | 35.971 | 37.220 | 37.220 | 43.041 | 46.692 | 47.355 | 48.309 |
| 150                     | 33.039 | 33.149 | 36.166 | 39.761 | 40.295 | 40.376 | 42.674 |

## การทดลองที่ 91

(15.40-20.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.299 | 60.790 | 61.162 | 64.655 | 68.807 | 68.807 | 71.856 |
| 60                      | 53.956 | 54.495 | 55.813 | 57.306 | 57.915 | 61.919 | 62.565 |
| 120                     | 43.541 | 43.731 | 47.770 | 51.724 | 52.173 | 56.497 | 57.636 |
| 150                     | 43.446 | 43.827 | 44.776 | 49.261 | 50.335 | 50.337 | 54.844 |



## การทดลองที่ 92

(15.40-20.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 55.762 | 59.288 | 65.288 | 69.848 | 71.174 | 83.449 | 83.862 |
| 60                      | 53.003 | 53.428 | 60.362 | 63.559 | 64.935 | 70.838 | 74.074 |
| 120                     | 43.541 | 44.943 | 50.251 | 62.565 | 63.157 | 66.815 | 67.415 |
| 150                     | 41.011 | 42.462 | 48.231 | 50.933 | 52.539 | 54.446 | 55.107 |

## การทดลองที่ 93

(15.40-30.05)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 42.857 | 43.446 | 47.656 | 54.249 | 56.657 | 58.593 | 59.820 |
| 60                      | 32.768 | 32.930 | 33.167 | 39.708 | 40.513 | 42.164 | 45.523 |
| 120                     | 30.959 | 31.315 | 32.154 | 33.130 | 35.046 | 38.167 | 42.462 |
| 150                     | 21.945 | 27.137 | 27.149 | 28.355 | 30.518 | 32.912 | 33.314 |

## การทดลองที่ 94

(15.40-30.10)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 42.372 | 42.523 | 61.538 | 62.176 | 73.529 | 77.720 | 77.821 |
| 60                      | 36.518 | 38.809 | 41.293 | 44.444 | 47.058 | 52.910 | 58.708 |
| 120                     | 36.166 | 38.160 | 39.138 | 42.553 | 46.082 | 51.903 | 53.191 |
| 150                     | 35.419 | 38.387 | 38.535 | 38.709 | 38.784 | 39.708 | 44.247 |

## การทดลองที่ 95

(15.40-30.20)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 53.310 | 58.881 | 59.347 | 69.524 | 70.093 | 75.662 | 79.365 |
| 60                      | 48.701 | 50.890 | 51.457 | 60.544 | 60.606 | 65.394 | 66.225 |
| 120                     | 33.745 | 44.215 | 45.730 | 51.063 | 56.657 | 60.544 | 60.728 |
| 150                     | 31.364 | 40.595 | 41.379 | 47.770 | 47.923 | 48.231 | 49.382 |

การทดลองที่ 96

(15.40-30.30)

| เวลา(ชม.)<br>ระดับ(ชม.) | 0.5    | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| 0                       | 54.995 | 65.717 | 69.605 | 72.992 | 73.170 | 75.949 | 84.388 |
| 60                      | 42.643 | 56.285 | 61.349 | 68.807 | 69.044 | 71.599 | 74.719 |
| 120                     | 39.011 | 50.000 | 53.191 | 54.054 | 54.446 | 68.104 | 68.649 |
| 150                     | 37.950 | 46.260 | 47.770 | 52.770 | 53.191 | 55.504 | 57.306 |

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