1.Utilizando los algoritmos de planificación FIFO, SJF y SRTF calcula el tiempo de espera y tiempo de respuesta de cada proceso. Realízalo gráficamente y calcúlalo de forma numérica. Calcula también el tiempo medio de espera y de respuesta en cada algoritmo.

| PROCESO | TIEMPO DE LLEGADA | TIEMPO DE EJECUCIÓN |
| --- | --- | --- |
| P1 | 0 | 6 |
| P2 | 3 | 2 |
| P3 | 4 | 4 |
| P4 | 5 | 3 |

| Algoritmo FIFO | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| P1 | P1 | P1 | P1 | P1 | P1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | P2 | P2 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | P3 | P3 | P3 | P3 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | P4 | P4 | P4 |

Tiempo de respuesta Tiempo de espera

P1 → 6 U/t P1 → 0 U/t

P2 → 5 U/t P2 → 3 U/t

P3 → 8 U/t P3 → 4 U/t

P4 → 10 U/t P4 → 7 U/t

| Algoritmo SJF | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| P1 | P1 | P1 | P1 | P1 | P1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  | P2 | P2 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | P3 | P3 | P3 | P3 |
|  |  |  |  |  |  |  |  | P4 | P4 | P4 |  |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 6 U/t P1 → 0 U/t

P2 → 5 U/t P2 → 3 U/t

P3 → 11 U/t P3 → 7 U/t

P4 → 6 U/t P4 → 3 U/t

| Algoritmo SRTF | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| P1 | P1 | P1 |  |  |  |  |  | P1 | P1 | P1 |  |  |  |  |
|  |  |  | P2 | P2 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | P3 | P3 | P3 | P3 |
|  |  |  |  |  | P4 | P4 | P4 |  |  |  |  |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 6 U/t P1 → 0 U/t

P2 → 5 U/t P2 → 5 U/t

P3 → 11 U/t P3 → 7 U/t

P4 → 6 U/t P4 → 3 U/t

**2.Utilizando los algoritmos de planificación FIFO, ROUND ROBIN y SJF, calcula el tiempo de espera y tiempo de respuesta de cada proceso. Realízalo gráficamente y calcúlalo de forma numérica. Calcula también el tiempo medio de espera y de respuesta en cada algoritmo. En ROUND ROBIN utiliza el quantum igual a 2 (q=2).**

| **PROCESO** | **TIEMPO DE LLEGADA** | **TIEMPO DE EJECUCIÓN** |
| --- | --- | --- |
| **P1** | **2** | **2** |
| **P2** | **0** | **8** |
| **P3** | **3** | **6** |
| **P4** | **4** | **4** |

| Algoritmo FIFO | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|  |  |  |  |  |  |  |  | P1 | P1 |  |  |  |  |  |  |  |  |  |  |
| P2 | P2 | P2 | P2 | P2 | P2 | P2 | P2 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | P3 | P3 | P3 | P3 | P3 | P3 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | P4 | P4 | P4 | P4 |

Tiempo de respuesta Tiempo de espera

P1 → 8 U/t P1 → 6 U/t

P2 → 8 U/t P2 → 0 U/t

P3 → 13 U/t P3 → 7 U/t

P4 → 15 U/t P4 → 12 U/t

| Algoritmo ROUND | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|  |  | P1 | P1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| P2 | P2 |  |  |  |  |  |  | P2 | P2 |  |  |  |  | P2 | P2 |  |  | P2 | P2 |
|  |  |  |  | P3 | P3 |  |  |  |  | P3 | P3 |  |  |  |  | P3 | P3 |  |  |
|  |  |  |  |  |  | P4 | P4 |  |  |  |  | P4 | P4 |  |  |  |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 2 U/t P1 → 0 U/t

P2 → 8 U/t P2 →12 U/t

P3 → 13 U/t P3 → 9 U/t

P4 → 15 U/t P4 → 6 U/t

| Algoritmo SJF | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|  |  |  |  |  |  |  |  | P1 | P1 |  |  |  |  |  |  |  |  |  |  |
| P2 | P2 | P2 | P2 | P2 | P2 | P2 | P2 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | P3 | P3 | P3 | P3 | P3 | P3 |
|  |  |  |  |  |  |  |  |  |  | P4 | P4 | P4 | P4 |  |  |  |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 8 U/t P1 → 6 U/t

P2 → 8 U/t P2 → 0 U/t

P3 → 13 U/t P3 → 7 U/t

P4 → 15 U/t P4 → 6 U/t

3. Utilizando los algoritmos de planificación ROUND ROBIN, por prioridades no expulsivo y por prioridades expulsivo calcula el tiempo de espera y tiempo de respuesta de cada proceso. Realízalo gráficamente y calcúlalo de forma numérica. Calcula también el tiempo medio de espera y de respuesta en cada algoritmo. En ROUND ROBIN utiliza el quantum igual a 2 (q=2). La prioridad 1 es la más alta y la 4 la más baja. La prioridad solo se tendrá en cuenta en el algoritmo por prioridades.

| PROCESO | TIEMPO DE LLEGADA | TIEMPO DE EJECUCIÓN | PRIORIDAD |
| --- | --- | --- | --- |
| P1 | 0 | 4 | 4 |
| P2 | 1 | 8 | 2 |
| P3 | 3 | 6 | 1 |
| P4 | 4 | 4 | 3 |

| Algoritmo Round Robin | | | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| P1 | P1 |  |  |  |  |  |  | P1 | P1 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  | P2 | P2 |  |  |  |  |  |  | P2 | P2 |  |  |  |  | P2 | P2 |  |  | P2 | P2 |
|  |  |  |  | P3 | P3 |  |  |  |  |  |  | P3 | P3 |  |  |  |  | P3 | P3 |  |  |
|  |  |  |  |  |  | P4 | P4 |  |  |  |  |  |  | P4 | P4 |  |  |  |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 8 U/t P1 → 6 U/t

P2 → 8 U/t P2 →12 U/t

P3 → 13 U/t P3 → 11 U/t

P4 → 15 U/t P4 → 8 U/t

| Algoritmo por prioridades expulsivo | | | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| P1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | P1 | P1 | P1 |
|  | P2 | P2 |  |  |  |  |  |  | P2 | P2 | P2 | P2 | P2 | P2 |  |  |  |  |  |  |  |
|  |  |  | P3 | P3 | P3 | P3 | P3 | P3 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | P4 | P4 | P4 | P4 |  |  |  |

Tiempo de respuesta Tiempo de espera

P1 → 8 U/t P1 → 18 U/t

P2 → 8 U/t P2 → 6 U/t

P3 → 13 U/t P3 → 3 U/t

P4 → 15 U/t P4 → 15 U/t

| Algoritmo por prioridades no expulsivo | | | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| P1 | P1 | P1 | P1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | P2 | P2 | P2 | P2 | P2 | P2 | P2 | P2 |  |  |  |  |
|  |  |  |  | P3 | P3 | P3 | P3 | P3 | P3 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | P4 | P4 | P4 | P4 |

Tiempo de respuesta Tiempo de espera

P1 → 8 U/t P1 → 0 U/t

P2 → 8 U/t P2 → 9 U/t

P3 → 13 U/t P3 → 1 U/t

P4 → 15 U/t P4 → 14 U/t