1. A. First Fit Algorithm P1=3,P2=4,P3=6,P4=3

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8M |  |  | 2M |  | 4M |  | 12M |
| 5M |  | 3M | 2M |  | 4M |  | 12M |
| 1M | 4M | 3M | 2M |  | 4M |  | 12M |
| 1M | 4M | 3M | 2M |  | 4M | 6M | 6M |
| 1M | 4M | 3M | 2m | 3M | 1M | 6M | 6M |

B.Best Fit Algorithm

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8M |  | 2M |  | 4M |  | 12M |
|  | 5M |  | 2M | 3M | 1M |  | 12M |
|  | 4M | 4M | 2M | 3M | 1M |  | 12M |
|  | 4M | 4M | 2M | 3M | 1M | 6M | 6M |
| 3M | 1M | 4M | 2m | 3M | 1M | 6M | 6M |

C.WorstFit Algorithm

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8M |  | 2M |  | 4M |  | 12M |  |  |
| 8M |  | 2M |  | 4M | 3M | 9M |  |  |
| 8M |  | 2M |  | 4M | 3M | 5M | 4M |  |
| 2M | 2M | 2M |  | 4M | 3M | 5M | 4M |  |
| 2M | 2M | 2m |  | 4M | 3M | 2M | 4M | 3M |

* Deception is a threat to either system integrity or data integrity.

Attacks include:

* Masquerade
* Falsification
* Repudiation
* Disruption is a threat to availability or system integrity.

Attacks include:

* Incapacitation
* Corruption
* Obstruction
* Usurpation is a threat to system integrity.

Attacks include:

* + Misappropriation
  + Misuse
* Unauthorised Disclosure is a threat to confidentiality.

Attacks include:

* Exposure (deliberate or through error)
* Interception
* Inference
* Intrusion

1. A. FIFO

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 1 | 2 | 5 | 4 | 6 | 1 | 2 | 4 | 6 |
| 1 | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 1 | 1 | 1 | 6 |
|  | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 2 | 2 | 2 |
|  |  | 3 | 3 | 3 | 3 | 3 | 6 | 6 | 6 | 4 | 4 |
| P | P | P |  |  | P | P | P | P | P | P | P |

Page Fault = 10

B.LRU

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 1 | 2 | 5 | 4 | 6 | 1 | 2 | 4 | 6 |
| 1 | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 2 | 2 | 2 |
|  | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 6 | 6 | 4 | 4 |
|  |  | 3 | 3 | 3 | 5 | 5 | 5 | 1 | 1 | 1 | 6 |
| P | P | P |  |  | P | P | P | P | P | P | P |

Page Fault= 10

C.Optimal

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 1 | 2 | 5 | 4 | 6 | 1 | 2 | 4 | 6 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 4 |
|  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
|  |  | 3 | 3 | 3 | 5 | 4 | 6 | 6 | 6 | 6 | 6 |
| P | P | P |  |  | P | P | P |  |  | P |  |

Page Fault = 7

D.Clock

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 1 | 2 | 5 | 4 | 6 | 1 | 2 | 4 | 6 |
| 1\* | 1\* | ->1\* | ->1\* | ->1\* | 5\* | 5\* | ->5\* | 1\* | 1\* | ->1\* | 6\* |
| -> | 2\* | 2\* | 2\* | 2\* | ->2 | 4\* | 4\* | ->4 | 2\* | 2\* | ->2 |
|  | -> | 3\* | 3\* | 3\* | 5 | ->4 | 6\* | 6 | ->6 | 4\* | 4 |
| P | P | P |  |  | P | P | P | P | P | P | P |

Page Fault = 10

1. 3 User

4 Files

Matrix

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | F1 | F2 | F3 | F4 |
| U1 | rw- | --- | --- | rw- |
| U2 | r-- | rw- | --x | --- |
| U3 | --- | --x | rwx | --x |