NICHOLAS WEEKES

CS 325

Midterm B

1. IAS PROGRAM:

|  |  |
| --- | --- |
| ADDRESS | OPCODE |
| 000 | 0100050002 |
| 001 | 0000000000 |
| 002 | 0100002009 |
| 003 | 2100801009 |
| 004 | 0500A01009 |
| 005 | 0100706008 |
| 006 | 0E00000000 |
| 007 | 0000000006 |
| 008 | 0000000000 |
| 009 | 0000000011 |
| 00A | 0000000012 |
| 00B | 0000000001 |

1. **Calculate the MIPS values for each computer for each program.**
   * MIPS = (100/T )= (100/ 417) =>.24

MIPS for Computer A/ Program 1 is **.24**

* + MIPS = (100/T) = ( 100/83) => 1.20

MIPS for computer A / Program 2 is **1.20**

* + MIPS = (100/T) = (100/39,449) => .0025

MIPS for computer A / Program 3 is **.0025**

* + MIPS = (100/T) = ( 100/66) => 1.51

MIPS for computer A/ Program 4 is **1.51**

* + MIPS = (100/T) = (100/772) => .129

MIPS for computer B / Program 5 is **.129**

* + MIPS = (100/T) = (100/244) => .409

MIPS for computer B / Program 1 is **.409**

* + MIPS = (100/T) = (100/70) => 1.42

MIPS for computer B / Program 2 is 1.42

* + MIPS = (100/T) = ( 100/35,527) => .0028

MIPS for Computer B / Program 3 is **.0028**

* + MIPS = (100/T) = (100/153) => .65

MIPS for computer B/ Program 4 is **.65**

* + MIPS = (100/T) = (100/368) => .27

**MIPS for computer B / Program 5 is .27**

* + MIPS = (100/T) = (100/134) => .746

MIPS for computer C/ Program 1 is **.746**

* + MIPS = (100/T) = (100/70) => 1.42

MIPS for computer C/ Program 2 is **1.42**

* + MIPS = (100/T) = ( 100/66,000) => .0015

MIPS for computer C/ Program 3 is .0015

* + MIPS = (100/T) = ( 100/135) => .740

MIPS for computer C/ Program 4 is **.740**

* + MIPS = (100/T) = ( 100/369) => .271

MIPS for computer C/ Program 5 is **.271**

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|  | **COMPUTER A** | **COMPUTER B** | **COMPUTER C** |
| **Program 1** | **.24** | **.409** | **.746** |
| **PROGRAM 2** | **1.20** | **1.42** | **1.42** |
| **PROGRAM 3** | **.0025** | **.0028** | **.0015** |
| **PROGRAM 4** | **1.51** | **.65** | **.740** |
| **PROGRAM 5** | **.129** | **.27** | **.271** |

1. Calculate the arithmetic means assuming equal weights for the four programs.

**Cumulative Sum/ Total count**

**Arithmetic mean = (.24)+(1.20)+(.0025)+(1.51) + (.129)/(5)**

**=3.0815/5 = .6163**

**Computer A MIPS: .6163**

**Arithmetic mean = (.409) +(1.42) + (.0028) + (.65) + (.27)/(5)**

**= 2.7518 /5 = .55036**

**Computer B MIPS is: .55036**

**Arithmetic mean = (.746) + (1.42) + (.0015) + (.740) + (.241 )/(5)**

**= 3.1485/5 = .6297**

**Computer C MIPS is: .6297**

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| **Computer name** | **A.M.** | **Rank** |
| **A** | **.6163** | **1** |
| **B** | **.55036** | **2** |
| **C** | **.6297** | **3** |

1. Calculate the harmonic means assuming equal weights for the four programs.

**H.M. = NUMBER OF PROGRAMS**

**Computer A:**

**(5)/ (1/417) + (1/83) + (1/ (39,449) + (1/66) + (1/772)**

**= (5) / (.0023 + .0120 + 2.534 + .015 + .0012)**

**= (5) / (2.6995)**

**= 0.85**

**H.M. for computer A is: 0.85**

**Computer B:**

**(5) / (1/244) + (1/70) + (1/ 35,527) + (1/153) + (1/368)**

**= (5) / (.0040) +(.014) + (2.81) + (.0065) + (.0027 )**

**= (5) / (2.8372)**

**= 1.762**

**H.M. for computer B is: 1.762**

**Computer C:**

**= (5) / (1/134) +(1/70) +(1/66,000) +(1/135)+ (1/369)**

**= (5) / (.0074) + (.014) + (1.515) + (.0074) + (.0027)**

**= (5) / (1.5465)**

**= 3.23**

**H.M. for computer C is: 2.5**

|  |  |  |
| --- | --- | --- |
| **Computer name** | **H.M.** | **RANK** |
| **A** | **0.85** | **3** |
| **B** | **1.762** | **2** |
| **C** | **3.23** | **1** |