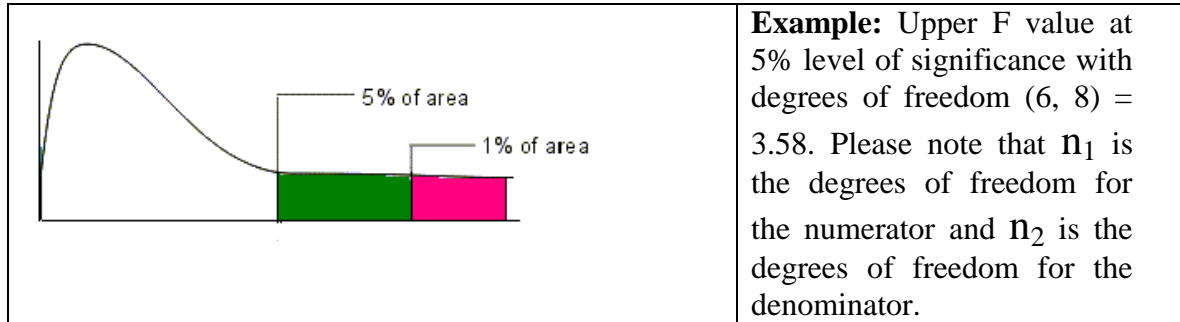


## Appendix G- F Distribution Table

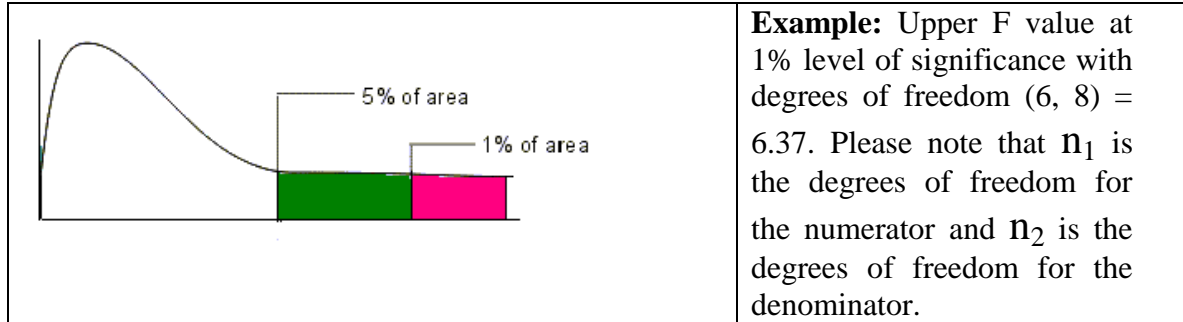


### Upper F values for 5% significance

| $n_1$ |        |        |        |        |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|       | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     |
| $n_2$ |        |        |        |        |        |        |        |        |        |        |
| 1     | 161.45 | 199.50 | 215.71 | 224.58 | 230.16 | 233.99 | 236.77 | 238.88 | 240.54 | 241.88 |
| 2     | 18.51  | 19.00  | 19.16  | 19.25  | 19.30  | 19.33  | 19.35  | 19.37  | 19.38  | 19.40  |
| 3     | 10.13  | 9.55   | 9.28   | 9.12   | 9.01   | 8.94   | 8.89   | 8.85   | 8.81   | 8.79   |
| 4     | 7.71   | 6.94   | 6.59   | 6.39   | 6.26   | 6.16   | 6.09   | 6.04   | 6.00   | 5.96   |
| 5     | 6.61   | 5.79   | 5.41   | 5.19   | 5.05   | 4.95   | 4.88   | 4.82   | 4.77   | 4.74   |
| 6     | 5.99   | 5.14   | 4.76   | 4.53   | 4.39   | 4.28   | 4.21   | 4.15   | 4.10   | 4.06   |
| 7     | 5.59   | 4.74   | 4.35   | 4.12   | 3.97   | 3.87   | 3.79   | 3.73   | 3.68   | 3.64   |
| 8     | 5.32   | 4.46   | 4.07   | 3.84   | 3.69   | 3.58   | 3.50   | 3.44   | 3.39   | 3.35   |
| 9     | 5.12   | 4.26   | 3.86   | 3.63   | 3.48   | 3.37   | 3.29   | 3.23   | 3.18   | 3.14   |
| 10    | 4.96   | 4.10   | 3.71   | 3.48   | 3.33   | 3.22   | 3.14   | 3.07   | 3.02   | 2.98   |
| 11    | 4.84   | 3.98   | 3.59   | 3.36   | 3.20   | 3.09   | 3.01   | 2.95   | 2.90   | 2.85   |
| 12    | 4.75   | 3.89   | 3.49   | 3.26   | 3.11   | 3.00   | 2.91   | 2.85   | 2.80   | 2.75   |
| 13    | 4.67   | 3.81   | 3.41   | 3.18   | 3.03   | 2.92   | 2.83   | 2.77   | 2.71   | 2.67   |
| 14    | 4.60   | 3.74   | 3.34   | 3.11   | 2.96   | 2.85   | 2.76   | 2.70   | 2.65   | 2.60   |
| 15    | 4.54   | 3.68   | 3.29   | 3.06   | 2.90   | 2.79   | 2.71   | 2.64   | 2.59   | 2.54   |
| 16    | 4.49   | 3.63   | 3.24   | 3.01   | 2.85   | 2.74   | 2.66   | 2.59   | 2.54   | 2.49   |
| 17    | 4.45   | 3.59   | 3.20   | 2.96   | 2.81   | 2.70   | 2.61   | 2.55   | 2.49   | 2.45   |
| 18    | 4.41   | 3.55   | 3.16   | 2.93   | 2.77   | 2.66   | 2.58   | 2.51   | 2.46   | 2.41   |
| 19    | 4.38   | 3.52   | 3.13   | 2.90   | 2.74   | 2.63   | 2.54   | 2.48   | 2.42   | 2.38   |
| 20    | 4.35   | 3.49   | 3.10   | 2.87   | 2.71   | 2.60   | 2.51   | 2.45   | 2.39   | 2.35   |
| 21    | 4.32   | 3.47   | 3.07   | 2.84   | 2.68   | 2.57   | 2.49   | 2.42   | 2.37   | 2.32   |
| 22    | 4.30   | 3.44   | 3.05   | 2.82   | 2.66   | 2.55   | 2.46   | 2.40   | 2.34   | 2.30   |
| 23    | 4.28   | 3.42   | 3.03   | 2.80   | 2.64   | 2.53   | 2.44   | 2.37   | 2.32   | 2.27   |
| 24    | 4.26   | 3.40   | 3.01   | 2.78   | 2.62   | 2.51   | 2.42   | 2.36   | 2.30   | 2.25   |
| 25    | 4.24   | 3.39   | 2.99   | 2.76   | 2.60   | 2.49   | 2.40   | 2.34   | 2.28   | 2.24   |
| 30    | 4.17   | 3.32   | 2.92   | 2.69   | 2.53   | 2.42   | 2.33   | 2.27   | 2.21   | 2.16   |
| 40    | 4.08   | 3.23   | 2.84   | 2.61   | 2.45   | 2.34   | 2.25   | 2.18   | 2.12   | 2.08   |
| 60    | 4.00   | 3.15   | 2.76   | 2.53   | 2.37   | 2.25   | 2.17   | 2.10   | 2.04   | 1.99   |
| 120   | 3.92   | 3.07   | 2.68   | 2.45   | 2.29   | 2.18   | 2.09   | 2.02   | 1.96   | 1.91   |
| 1000  | 3.85   | 3.00   | 2.61   | 2.38   | 2.22   | 2.11   | 2.02   | 1.95   | 1.89   | 1.84   |

### Upper F values for 5% significance

|                | n <sub>1</sub> |        |        |        |        |        |        |        |        |        |
|----------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                | 10             | 12     | 15     | 20     | 24     | 30     | 40     | 60     | 120    | 1000   |
| n <sub>2</sub> |                |        |        |        |        |        |        |        |        |        |
| 1              | 241.88         | 243.90 | 245.95 | 248.02 | 249.05 | 250.10 | 251.14 | 252.20 | 253.25 | 254.19 |
| 2              | 19.40          | 19.41  | 19.43  | 19.45  | 19.45  | 19.46  | 19.47  | 19.48  | 19.49  | 19.49  |
| 3              | 8.79           | 8.74   | 8.70   | 8.66   | 8.64   | 8.62   | 8.59   | 8.57   | 8.55   | 8.53   |
| 4              | 5.96           | 5.91   | 5.86   | 5.80   | 5.77   | 5.75   | 5.72   | 5.69   | 5.66   | 5.63   |
| 5              | 4.74           | 4.68   | 4.62   | 4.56   | 4.53   | 4.50   | 4.46   | 4.43   | 4.40   | 4.37   |
| 6              | 4.06           | 4.00   | 3.94   | 3.87   | 3.84   | 3.81   | 3.77   | 3.74   | 3.70   | 3.67   |
| 7              | 3.64           | 3.57   | 3.51   | 3.44   | 3.41   | 3.38   | 3.34   | 3.30   | 3.27   | 3.23   |
| 8              | 3.35           | 3.28   | 3.22   | 3.15   | 3.12   | 3.08   | 3.04   | 3.01   | 2.97   | 2.93   |
| 9              | 3.14           | 3.07   | 3.01   | 2.94   | 2.90   | 2.86   | 2.83   | 2.79   | 2.75   | 2.71   |
| 10             | 2.98           | 2.91   | 2.85   | 2.77   | 2.74   | 2.70   | 2.66   | 2.62   | 2.58   | 2.54   |
| 11             | 2.85           | 2.79   | 2.72   | 2.65   | 2.61   | 2.57   | 2.53   | 2.49   | 2.45   | 2.41   |
| 12             | 2.75           | 2.69   | 2.62   | 2.54   | 2.51   | 2.47   | 2.43   | 2.38   | 2.34   | 2.30   |
| 13             | 2.67           | 2.60   | 2.53   | 2.46   | 2.42   | 2.38   | 2.34   | 2.30   | 2.25   | 2.21   |
| 14             | 2.60           | 2.53   | 2.46   | 2.39   | 2.35   | 2.31   | 2.27   | 2.22   | 2.18   | 2.14   |
| 15             | 2.54           | 2.48   | 2.40   | 2.33   | 2.29   | 2.25   | 2.20   | 2.16   | 2.11   | 2.07   |
| 16             | 2.49           | 2.42   | 2.35   | 2.28   | 2.24   | 2.19   | 2.15   | 2.11   | 2.06   | 2.02   |
| 17             | 2.45           | 2.38   | 2.31   | 2.23   | 2.19   | 2.15   | 2.10   | 2.06   | 2.01   | 1.97   |
| 18             | 2.41           | 2.34   | 2.27   | 2.19   | 2.15   | 2.11   | 2.06   | 2.02   | 1.97   | 1.92   |
| 19             | 2.38           | 2.31   | 2.23   | 2.16   | 2.11   | 2.07   | 2.03   | 1.98   | 1.93   | 1.88   |
| 20             | 2.35           | 2.28   | 2.20   | 2.12   | 2.08   | 2.04   | 1.99   | 1.95   | 1.90   | 1.85   |
| 21             | 2.32           | 2.25   | 2.18   | 2.10   | 2.05   | 2.01   | 1.96   | 1.92   | 1.87   | 1.82   |
| 22             | 2.30           | 2.23   | 2.15   | 2.07   | 2.03   | 1.98   | 1.94   | 1.89   | 1.84   | 1.79   |
| 23             | 2.27           | 2.20   | 2.13   | 2.05   | 2.01   | 1.96   | 1.91   | 1.86   | 1.81   | 1.76   |
| 24             | 2.25           | 2.18   | 2.11   | 2.03   | 1.98   | 1.94   | 1.89   | 1.84   | 1.79   | 1.74   |
| 25             | 2.24           | 2.16   | 2.09   | 2.01   | 1.96   | 1.92   | 1.87   | 1.82   | 1.77   | 1.72   |
| 30             | 2.16           | 2.09   | 2.01   | 1.93   | 1.89   | 1.84   | 1.79   | 1.74   | 1.68   | 1.63   |
| 40             | 2.08           | 2.00   | 1.92   | 1.84   | 1.79   | 1.74   | 1.69   | 1.64   | 1.58   | 1.52   |
| 60             | 1.99           | 1.92   | 1.84   | 1.75   | 1.70   | 1.65   | 1.59   | 1.53   | 1.47   | 1.40   |
| 120            | 1.91           | 1.83   | 1.75   | 1.66   | 1.61   | 1.55   | 1.50   | 1.43   | 1.35   | 1.27   |
| 1000           | 1.84           | 1.76   | 1.68   | 1.58   | 1.53   | 1.47   | 1.41   | 1.33   | 1.24   | 1.11   |



### Upper F values for 1% significance

| $n_1$ |         |         |         |         |         |         |         |         |         |         |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|       | 1       | 2       | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10      |
| $n_2$ |         |         |         |         |         |         |         |         |         |         |
| 1     | 4052.18 | 4999.34 | 5403.53 | 5624.26 | 5763.96 | 5858.95 | 5928.33 | 5980.95 | 6022.40 | 6055.93 |
| 2     | 98.50   | 99.00   | 99.16   | 99.25   | 99.30   | 99.33   | 99.36   | 99.38   | 99.39   | 99.40   |
| 3     | 34.12   | 30.82   | 29.46   | 28.71   | 28.24   | 27.91   | 27.67   | 27.49   | 27.34   | 27.23   |
| 4     | 21.20   | 18.00   | 16.69   | 15.98   | 15.52   | 15.21   | 14.98   | 14.80   | 14.66   | 14.55   |
| 5     | 16.26   | 13.27   | 12.06   | 11.39   | 10.97   | 10.67   | 10.46   | 10.29   | 10.16   | 10.05   |
| 6     | 13.75   | 10.92   | 9.78    | 9.15    | 8.75    | 8.47    | 8.26    | 8.10    | 7.98    | 7.87    |
| 7     | 12.25   | 9.55    | 8.45    | 7.85    | 7.46    | 7.19    | 6.99    | 6.84    | 6.72    | 6.62    |
| 8     | 11.26   | 8.65    | 7.59    | 7.01    | 6.63    | 6.37    | 6.18    | 6.03    | 5.91    | 5.81    |
| 9     | 10.56   | 8.02    | 6.99    | 6.42    | 6.06    | 5.80    | 5.61    | 5.47    | 5.35    | 5.26    |
| 10    | 10.04   | 7.56    | 6.55    | 5.99    | 5.64    | 5.39    | 5.20    | 5.06    | 4.94    | 4.85    |
| 11    | 9.65    | 7.21    | 6.22    | 5.67    | 5.32    | 5.07    | 4.89    | 4.74    | 4.63    | 4.54    |
| 12    | 9.33    | 6.93    | 5.95    | 5.41    | 5.06    | 4.82    | 4.64    | 4.50    | 4.39    | 4.30    |
| 13    | 9.07    | 6.70    | 5.74    | 5.21    | 4.86    | 4.62    | 4.44    | 4.30    | 4.19    | 4.10    |
| 14    | 8.86    | 6.51    | 5.56    | 5.04    | 4.69    | 4.46    | 4.28    | 4.14    | 4.03    | 3.94    |
| 15    | 8.68    | 6.36    | 5.42    | 4.89    | 4.56    | 4.32    | 4.14    | 4.00    | 3.89    | 3.80    |
| 16    | 8.53    | 6.23    | 5.29    | 4.77    | 4.44    | 4.20    | 4.03    | 3.89    | 3.78    | 3.69    |
| 17    | 8.40    | 6.11    | 5.19    | 4.67    | 4.34    | 4.10    | 3.93    | 3.79    | 3.68    | 3.59    |
| 18    | 8.29    | 6.01    | 5.09    | 4.58    | 4.25    | 4.01    | 3.84    | 3.71    | 3.60    | 3.51    |
| 19    | 8.18    | 5.93    | 5.01    | 4.50    | 4.17    | 3.94    | 3.77    | 3.63    | 3.52    | 3.43    |
| 20    | 8.10    | 5.85    | 4.94    | 4.43    | 4.10    | 3.87    | 3.70    | 3.56    | 3.46    | 3.37    |
| 21    | 8.02    | 5.78    | 4.87    | 4.37    | 4.04    | 3.81    | 3.64    | 3.51    | 3.40    | 3.31    |
| 22    | 7.95    | 5.72    | 4.82    | 4.31    | 3.99    | 3.76    | 3.59    | 3.45    | 3.35    | 3.26    |
| 23    | 7.88    | 5.66    | 4.76    | 4.26    | 3.94    | 3.71    | 3.54    | 3.41    | 3.30    | 3.21    |
| 24    | 7.82    | 5.61    | 4.72    | 4.22    | 3.90    | 3.67    | 3.50    | 3.36    | 3.26    | 3.17    |
| 25    | 7.77    | 5.57    | 4.68    | 4.18    | 3.85    | 3.63    | 3.46    | 3.32    | 3.22    | 3.13    |
| 30    | 7.56    | 5.39    | 4.51    | 4.02    | 3.70    | 3.47    | 3.30    | 3.17    | 3.07    | 2.98    |
| 40    | 7.31    | 5.18    | 4.31    | 3.83    | 3.51    | 3.29    | 3.12    | 2.99    | 2.89    | 2.80    |
| 60    | 7.08    | 4.98    | 4.13    | 3.65    | 3.34    | 3.12    | 2.95    | 2.82    | 2.72    | 2.63    |
| 120   | 6.85    | 4.79    | 3.95    | 3.48    | 3.17    | 2.96    | 2.79    | 2.66    | 2.56    | 2.47    |
| 1000  | 6.66    | 4.63    | 3.80    | 3.34    | 3.04    | 2.82    | 2.66    | 2.53    | 2.43    | 2.34    |

### Upper F values for 1% significance

|                |         |         | n <sub>1</sub> |         |         |         |         |         |         |         |
|----------------|---------|---------|----------------|---------|---------|---------|---------|---------|---------|---------|
|                | 10      | 12      | 15             | 20      | 24      | 30      | 40      | 60      | 120     | 1000    |
| n <sub>2</sub> |         |         |                |         |         |         |         |         |         |         |
| 1              | 6055.93 | 6106.68 | 6156.97        | 6208.66 | 6234.27 | 6260.35 | 6286.43 | 6312.97 | 6339.51 | 6362.80 |
| 2              | 99.40   | 99.42   | 99.43          | 99.45   | 99.46   | 99.47   | 99.48   | 99.48   | 99.49   | 99.50   |
| 3              | 27.23   | 27.05   | 26.87          | 26.69   | 26.60   | 26.50   | 26.41   | 26.32   | 26.22   | 26.14   |
| 4              | 14.55   | 14.37   | 14.20          | 14.02   | 13.93   | 13.84   | 13.75   | 13.65   | 13.56   | 13.47   |
| 5              | 10.05   | 9.89    | 9.72           | 9.55    | 9.47    | 9.38    | 9.29    | 9.20    | 9.11    | 9.03    |
| 6              | 7.87    | 7.72    | 7.56           | 7.40    | 7.31    | 7.23    | 7.14    | 7.06    | 6.97    | 6.89    |
| 7              | 6.62    | 6.47    | 6.31           | 6.16    | 6.07    | 5.99    | 5.91    | 5.82    | 5.74    | 5.66    |
| 8              | 5.81    | 5.67    | 5.52           | 5.36    | 5.28    | 5.20    | 5.12    | 5.03    | 4.95    | 4.87    |
| 9              | 5.26    | 5.11    | 4.96           | 4.81    | 4.73    | 4.65    | 4.57    | 4.48    | 4.40    | 4.32    |
| 10             | 4.85    | 4.71    | 4.56           | 4.41    | 4.33    | 4.25    | 4.17    | 4.08    | 4.00    | 3.92    |
| 11             | 4.54    | 4.40    | 4.25           | 4.10    | 4.02    | 3.94    | 3.86    | 3.78    | 3.69    | 3.61    |
| 12             | 4.30    | 4.16    | 4.01           | 3.86    | 3.78    | 3.70    | 3.62    | 3.54    | 3.45    | 3.37    |
| 13             | 4.10    | 3.96    | 3.82           | 3.66    | 3.59    | 3.51    | 3.43    | 3.34    | 3.25    | 3.18    |
| 14             | 3.94    | 3.80    | 3.66           | 3.51    | 3.43    | 3.35    | 3.27    | 3.18    | 3.09    | 3.02    |
| 15             | 3.80    | 3.67    | 3.52           | 3.37    | 3.29    | 3.21    | 3.13    | 3.05    | 2.96    | 2.88    |
| 16             | 3.69    | 3.55    | 3.41           | 3.26    | 3.18    | 3.10    | 3.02    | 2.93    | 2.84    | 2.76    |
| 17             | 3.59    | 3.46    | 3.31           | 3.16    | 3.08    | 3.00    | 2.92    | 2.83    | 2.75    | 2.66    |
| 18             | 3.51    | 3.37    | 3.23           | 3.08    | 3.00    | 2.92    | 2.84    | 2.75    | 2.66    | 2.58    |
| 19             | 3.43    | 3.30    | 3.15           | 3.00    | 2.92    | 2.84    | 2.76    | 2.67    | 2.58    | 2.50    |
| 20             | 3.37    | 3.23    | 3.09           | 2.94    | 2.86    | 2.78    | 2.69    | 2.61    | 2.52    | 2.43    |
| 21             | 3.31    | 3.17    | 3.03           | 2.88    | 2.80    | 2.72    | 2.64    | 2.55    | 2.46    | 2.37    |
| 22             | 3.26    | 3.12    | 2.98           | 2.83    | 2.75    | 2.67    | 2.58    | 2.50    | 2.40    | 2.32    |
| 23             | 3.21    | 3.07    | 2.93           | 2.78    | 2.70    | 2.62    | 2.54    | 2.45    | 2.35    | 2.27    |
| 24             | 3.17    | 3.03    | 2.89           | 2.74    | 2.66    | 2.58    | 2.49    | 2.40    | 2.31    | 2.22    |
| 25             | 3.13    | 2.99    | 2.85           | 2.70    | 2.62    | 2.54    | 2.45    | 2.36    | 2.27    | 2.18    |
| 30             | 2.98    | 2.84    | 2.70           | 2.55    | 2.47    | 2.39    | 2.30    | 2.21    | 2.11    | 2.02    |
| 40             | 2.80    | 2.66    | 2.52           | 2.37    | 2.29    | 2.20    | 2.11    | 2.02    | 1.92    | 1.82    |
| 60             | 2.63    | 2.50    | 2.35           | 2.20    | 2.12    | 2.03    | 1.94    | 1.84    | 1.73    | 1.62    |
| 120            | 2.47    | 2.34    | 2.19           | 2.03    | 1.95    | 1.86    | 1.76    | 1.66    | 1.53    | 1.40    |
| 1000           | 2.34    | 2.20    | 2.06           | 1.90    | 1.81    | 1.72    | 1.61    | 1.50    | 1.35    | 1.16    |