Question d

```
> step3 <- apply(exam_data, c(2,3), mean)
> step3
        Timepoint
ItemNum     1     2     3
      1  2.623 3.156 3.687
      2  2.720 3.324 3.702
      3  2.004 2.555 3.026
      4  2.233 2.777 3.475
      5  2.836 3.374 3.943
      6  1.994 2.537 3.076
      7  2.068 2.634 3.097
      8  2.673 3.207 3.669
      9  1.775 2.210 2.638
      10 2.431 2.983 3.504
      11 2.220 2.691 3.023
      12 2.102 2.687 3.250
      13 2.315 2.750 3.352
      14 1.870 2.448 3.211
      15 2.117 2.742 3.205
      16 2.220 2.858 3.464
      17 2.382 2.836 3.260
      18 2.784 3.241 3.621
      19 2.133 2.724 3.430
      20 2.366 2.723 3.164
```

The above lines generate the average overall score for each question over the 3 different timepoints.

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```
matplot(as.numeric(rownames(step3)), step3, type = "b" , pch = 16, lwd = 5, lty = 1, xlab = "ItemNum", ylab = "Average Overall Score",
        ylim = c(0,5), col = c(1:3))
legend(x = 15, y = 1.5, legend = colnames(step3), lwd = 2, col = c(1:3), cex = 1.0, title = "TimePoint")
```

The above lines were written to generate the plot shown below.