GRTEX

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1 Introduction

It is now possible to scramble TeX exams with the program GRTEX to produce very pretty examinations which use a minimum of paper and connect smoothly with the grading programs GRED and GRAD. Most of the work has been done by Joel Shapiro and you should read his cleverly written pseudo-exam entitled *Writing Exams in (La)TeX for use with GRTEX* (examexample.tex). The format may be either one column (portrait) or two column (landscape) and with or without page numbers. Defaults are two column and no page numbers. All normal TeX is legal in the header and in the questions. The questions file can be (La)TeX'd to check before being used as input for the GRTEX program. GRTEX scrambles the question and/or answer order to produce a TeX file with all versions as well as an answer key for use with GRAD. Note that a "want" file is also needed to specify the questions wanted, the type of scrambling, etc; see the GREAD/GRED/GRAD writeup. Simply type GRTEX to start the scrambling program. You will need to specify two input files: exam.q with the questions and exam.want (the want file), as well as two output files: exam.key (the answer key), and exam.tex (the final version of the exam ready to TeX or LaTeX). On the Sun: `dvips exam` will print the file.

2 Where to find things

All useful files are kept in tex_inputs and/or dra1:[MAX] on the VaX and $TEXINPUTS and /doc/physics/grading on the Suns. These include:

- examex.template This is a template – you fill in the contents.
- examexample.tex This contains Joel's instructions and is also a useful example.
- 227f90h1.psi (where i = 1,2,3,4,5, or 6) as well as empty.ps and thinempty.ps.

3 Format

The normal format is to have a cover page with instructions for the students and perhaps some equations. The examples can be edited to meet your needs with little change.

Each question has the format:

```
\setup{27}{2}%
{This is a question}%
{Answer 1}%
{Answer 2}%
{Answer 3}%
{Answer 4}%
{Answer 5}%
\stdquest
```

There are eight arguments to the \setup macro. 1 is the number of the question. This is used only by GRTEX when producing the (usually) scrambled exam and can be any unique number; it need not be consecutive. This is the number put in the "want" file to tell GRTEX which questions in the question file are wanted for the exam.

The second argument, 2, is the correct answer for use by GRTEX in making the key for the GRAD program. Then follows the question and answers; the % is just to allow a new line. Finally \stdquest (one of six possibilities) defines the question type.

4 Question Types

- stdquest is a standard question with five answers.
- fourquest is like stdquest, but uses only four answers.
- lilquest puts the answers on the same line to save space (unless they are too long to fit in which case they are continued on the next line).
- ivlquest is like lilquest, but uses only four answers.
- pixquest puts a picture to the right of the answers.
- lpixquest puts a figure to the right of the entire question and answers.
- fpixquest is like pixquest, but allows longer answers to extend into the picture column if they are below the picture.

5 Pictures

The three picture type questions each take two additional arguments:
\pixquest{1.5in}{227f90h1.ps1} where the first argument is the horizontal space reserved for the picture and the second argument is the address of the postscript file describing the picture. If you wish to set aside space for a hand-draw figure, use empty.ps for the name of the file. To reserve vertical space, use hempty.ps which is 100 x as high as it is wide. To set aside 5 inches for a problem, use \pixquest{0.05in}{hempty.ps}

The program xfig is a convenient way to generate pictures on both the Vax and Unix. If you wish to print the file by itself, you must add a line with "showpage" on it if you use "Encapsulated Postscript" output as is needed for the exam. xfig is similar to the draw programs on the MacIntosh and easily learned. Use the file command to save a picture for later editing and the export command to produce a postscript output file (which cannot be read back in). Also check that the postscript file is in portrait mode. The picture should automatically fit into the area you have set aside for it.

Note: Please send or email all exams, complete with figures, to Joel Shapiro or Dick Plano after the exam so a library can be generated. Please use the naming convention 227s94h1.ps5 for problem 5 of CH1 exam in Physics 227 in the spring of 1994. h2 for CH2 and fn for the final exam.