Mid Sweden University
Dept. of Info. Tech. and Media
Magnus Eriksson
E-mail magnus.eriksson@miun.se

2006-03-01

Quiz Simulation of Telesystems

Time: Maximum 30 minutes
Tools*:* No calculator, no notes.
Requirement: 50% for approval.

You only have to present the answers. No motivation and no calculation are required.

Good luck!

/Magnus

Name: _____

1. Combine a word in left column with a description in right column. State what number that is associated with which letter, in numerical order. There is a one-to-one relationship.

1. Code rate	A. Example of forward error correction (FEC) codes
2. Toolbox	B. Example of error detection codes, often used in Automatic Repeat Request (ARQ) protocols
3. Frame	C. An instantaneous discrete incident that changes a state variable or an output, or causes another such incident. These incidents may occur asynchronously, and not with a fixed sample rate.
4. Multi-rate model	D. The initial value of a random generator.
5. Blockset	E. A set of Matlab functions extending Matlab, for example .m-functions and precompiled DLL:s (so called MEX-files).
6. Eb/No	F. A Simulink model where different blocks and signal paths have different sample times.
7. Column vector	G. For example [1 2 3]
8. Base Workspace	H. The arrays (variables) that are seen from the command line.
9. Row vector	I. For example [1; 2; 3]
10. Seed	J. A set of simulink blocks and models
11. Block codes, for example Read Salomon codes, and convolutional codes	K. Matlab function that calculcates sum(x)/length(x), where x is its input argument.

12. Cyclic redundancy check, parity check,	L. A block of consecutive samples that have been stored in a single vector, in view to achieve more efficient simulation. Note that this is not the same thing as a Simulink vector, but a vector representation of a signal with consecutive samples.
13. Block interleaving and convolutional interleaving	M. Schemes for reordering of the bits, in view to achieve time diversity and spread error bursts over several blocks or packets, and thus increase the possibility that the FEC can correct them.
14. Event	N. Useful amount of data (or net bit rate) divided by the total amount of data (or the gross bit rate) including redundant error codes.
15. Mean	O. Similar to Signal-to-noise ratio, but normalized to avoid dependence on the number of bits per symbol in the modulation scheme.

(15 p)

Answer:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 .

2.

Consider the following Matlab function:

```
function y=myfun(x)
y=sum((1:3:x).^2)
```

a) What is the value of the function output argument *y* if it is called by `myfun(4)`?

Answer:_____

b) What is the result vector *A* if the function is called by `A=zeros(1,myfun(4))`.

Answers:_____

(5 p)