SSY145 WIRELESS NETWORKS
Exam Example

Instructions

- **Contact persons**
  - Tommy Svensson, examiner (contact by phone 031-772 1823)
  - Shen Li, teaching assistant (contact by phone 031–772 1829)
- **Allowed material**
  - All materials are allowed.
- **Grading** The exam consists of 12 short answer questions and 13 multiple choice questions.
  - A shortanswer question should be answered concisely using not more than two sentences.
  - A multiple choice question can have **more than one** correct alternative and all correct alternatives should be marked to obtain 0.5 points. The answers should be **motivated** briefly for a multiple choice question to obtain the other 0.5 points.
  - You need at least 10 of the maximum 25 points to pass the exam.
  - Answers should be in English.
- **Solutions and grading review**
  - Solutions will be posted on the course website no later than 3 days after the exam.
  - The grading can be reviewed as a report in Canvas, and discussed online on Friday June 12, at 13:00-14:00 in Zoom room https://chalmers.zoom.us/j/9259762080, or by appointment.

QUESTIONS

1. (1 point) Why are mm-waves called so or in other words what is the significance of the word "millimeter" in mm-waves?

2. (1 point) Give two differences between software defined networking (SDN) and network function virtualization (NFV).

3. (1 point) Give two reasons why there are gaps in the allocated spectrum for microwave backhaul services in W and D bands.

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A total 12 short answer questions like above. The answers to these questions can be found by answering some questions in the question bank.

4. (0.5 points) Which of the following statement about satellite communications is false?
   (a) Links are line-of-sight
   (b) Communication distance is very long, causing high latency
   (c) Regular antennas used for terrestrial communication are not useful for space missions
   (d) Frequency around 24GHz is suitable for satellite-to-ground communication because the resonance of water vapor is around 24GHz

   (0.5 points) Motivation for question 4:

5. (0.5 points) Which of the following are interference mitigation techniques?
   (a) Fractional frequency reuse
   (b) Receivers with interference suppression capabilities in uplink
   (c) Transmit beamforming in conjunction with receivers having interference suppression capabilities in downlink
   (d) All of the above

   (0.5 points) Motivation for question 4:

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A total 13 multiple choice questions like above. These questions are created by slightly tweaking the questions from the question bank.