



# UNIVERSITY OF RUHUNA

## Faculty of Engineering

End-Semester 4 Examination in Engineering: December 2015

**Module Number: IS4302**

**Module Name: Technology and Society**

**[Three Hours]**

**[Answer all questions, each question carries twelve marks]**

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- Q1. Comment on any **three** of the following (about 250 words = 4 marks each)
- Today's engineering degree programmes must not only provide their graduates with intellectual development and superb technical capabilities, but also a good understanding of economic, social, environmental, and international context of their professional activities.
  - In today's global economy, sharing of information, collaborative team work, innovative thinking, problem-solving and decision-making are key competencies necessary for an engineer.
  - Mere technical competency is no longer sufficient for future success, communication, project management, and leadership skills are becoming more important than ever for tomorrow's engineers.
  - Outcome based assessment and continuous quality improvement, are the basis of the new accreditation philosophy and criteria. They serve the same purpose as that of a truly dedicated faculty member setting high standards and then doing everything to help students achieve them.
- Q2. Write notes on any **three** of the following (about 250 words = 4 marks each)
- Technologies increase our comfort, reduce drudgery, and provide us with a plethora of essential goods and services as well as many non-essential ones.
  - Technology is used to enhance human beings physically and intellectually, however its' benefits are equally balanced by the downsides.
  - Technology offers the promise of a better world through the elimination of disease and material improvements to standards of living.
  - Scientific invention is driven by innate human curiosity and scientific discovery leads to technological application and commercial deployment.

- Q3. Discuss any **three** of the following (about 250 words = 4 marks each)
- The industrial revolution pulled people into the cities and the city-based industrial society cut off the people from nature, and from any regard for it.
  - By the end of the 20th century, the developed world has become a healthier, safer, and more productive place where engineering, through technology, had forged an irreversible imprint on our lives and our identity.
  - Provision of infrastructure alone will not alleviate poverty, without also providing access to that infrastructure.
  - Technology creates new economic opportunities and social benefits and, at the same time, creates new social problems.
- Q4. Explain clearly any **three** of the following (about 250 words = 4 marks each)
- Today, the way we consume and produce is continuing to put enormous pressure on the Earth's natural resources.
  - Satisfaction of fundamental human needs and development do not automatically imply natural resource depletion.
  - Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development.
  - Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.
- Q5. Describe any **three** of the following (about 250 words = 4 marks each)
- Without technology and innovation, industrialization will not happen, and without industrialization, development will not happen.
  - The marvels of engineering far outweigh the failures. There will always be failures as engineers push the boundaries by building taller buildings, longer bridges, or by reaching further into space.
  - Often, a deficiency in engineering ethics is found to be one of the root causes of an engineering failure.
  - The failure is central to understanding engineering, for engineering design has as its' first and foremost objective the obviation of failure.