

# **BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY**

## **ASSIGNMENT ON DISCRETE MATHEMATICS**

### **(EXERCISE 1.2)**

**SUMMITTED BY:**

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## Exercise: 1.2

### Problem No: 09

You can upgrade your operating system only if you have a 32-bit processor running at 1 GHz or faster, at least 1 GB RAM, and 16 GB free hard disk space, or a 64-bit processor running at 2 GHz or faster, at least 2 GB RAM, and at least 32 GB free hard disk space.

Express your answer in terms of:

- $u$ : You can upgrade your operating system
- $b_{32}$ : You have a 32-bit processor
- $b_{64}$ : You have a 64-bit processor
- $g_1$ : Your processor runs at 1 GHz or faster
- $g_2$ : Your processor runs at 2 GHz or faster
- $r_1$ : Your processor has at least 1 GB RAM
- $r_2$ : Your processor has at least 2 GB RAM
- $h_{16}$ : You have at least 16 GB free hard disk space
- $h_{32}$ : You have at least 32 GB free hard disk space

**Solution:**

$$U \Rightarrow ((b_{32} \wedge g_1 \wedge r_1 \wedge h_{16}) \vee (b_{64} \wedge g_2 \wedge r_2 \wedge h_{32}))$$