

## BPN2023: INDUSTRIAL ENGINEERING

### REVIEW OF CHAPTER 6: WORK MEASUREMENT

**Direction:**

With hand writing, answer the following questions. You are required to submit the answer no later than 24 July 2017.

**Questions:**

1. Define the following terms:
  - a. Work measurement.
  - b. Standard time.
  - c. Normal time.
  - d. Allowance time.
2. Explain objectives of work measurement.
3. Explain methods to determine standard time.
4. With the help of diagram, explain the steps in determining standard time.
5. The result of a work study in Takana Juo Sdn. Bhd is shown in Table 1.

Work element	Observations					Performance Rating (%)
	1	2	3	4	5	
A. Prepare daily reports	40	33	35	37	38	120
B. Photocopy results	12	33 <sup>a</sup>	10	15	13	110
C. Label and package reports	3	4	5	4	5	95
D. Distribute reports	15	19	20	17	44 <sup>b</sup>	88

**Notes:** <sup>a</sup>Photocopying machine is broken; included as a delay in allowance factor.

<sup>b</sup>Power outage, included as a delay in allowance factor.

**Table 1. Results of Work Study in Takana Juo Sdn. Bhd**

Based on **Table 1**, you are required to:

- a) Compute the average time for each work element.
- b) Compute the normal time for each work element.
- c) If allowance for this type of work is 15%, estimate the standard time?
- d) Compute the number of observations that are needed for a 95% confidence level within  $\pm 5\%$  accuracy? (Hint: Calculate the sample size for each element).