

Post-Lab Assessment: Induction Machine Lab

- **Description:** This assessment evaluates your knowledge and skills after completing the induction machine laboratory session. Please answer all questions honestly based on your lab experience. This will help us measure the effectiveness of the lab.
- **Estimated Time:** 15-20 minutes

* Required

Student Information

1. Student name *

2. Student ID *

3. Gender *

☐ Man

☐ Woman

4. Program *

☐ BFM

☐ BTI/BTX

☐ BHM

THEORETICAL KNOWLEDGE REASSESSMENT (CONCEIVE)

5. What is the synchronous speed of a 4-pole induction motor connected to a 50Hz supply?

- ☐ 1000 rpm
- ☐ 1200 rpm
- ☐ 1500 rpm
- ☐ 1800 rpm

6. The slip of an induction motor is defined as:

- ☐ $(N_s - N_r)/N_s$
- ☐ $(N_r - N_s)/N_r$
- ☐ N_s/N_r
- ☐ N_r/N_s

7. At no-load condition, the slip of an induction motor is:

- ☐ Zero
- ☐ Very small (1-3%)
- ☐ Around 5%
- ☐ Maximum

8. Rate your current understanding of no-load testing of electrical machines.

1 (No understanding) to 5 (Complete understanding)

1	2	3	4	5
---	---	---	---	---

9. Rate your current understanding of "slip" in induction motors

1	2	3	4	5
---	---	---	---	---

10. Rate your current understanding of power factor measurement in AC circuits

1	2	3	4	5
---	---	---	---	---

11. Rate your current understanding of speed-torque characteristics in motors

1	2	3	4	5
---	---	---	---	---

12. Based on your lab experience, explain why the speed of an induction motor changes slightly from no-load to full-load conditions. (3-5 SENTENCES) *

13. What factors affect the power factor of an induction motor? List at least 3 factors and briefly explain each. (5-7 sentences) *

EXPERIMENTAL DESIGN REASSESSMENT (DESIGN)

14. To measure the power factor of a 3-phase induction motor, which method would you use?

- ☐ Single wattmeter method
- ☐ Two wattmeter method
- ☐ Three wattmeter method
- ☐ Voltmeter-ammeter method

15. In a no-load test, which parameter would you expect to remain relatively constant as voltage varies?

- ☐ Current
- ☐ Power factor
- ☐ Speed
- ☐ Power consumption

16. Rate your confidence in setting up electrical measurement equipment safely **Scale:** 1 (Not confident) to 5 (Very confident)

1	2	3	4	5
---	---	---	---	---

17. Rate your confidence in selecting appropriate voltage ranges for motor testing

1	2	3	4	5
---	---	---	---	---

18. Rate your confidence in identifying and following electrical safety procedures

1	2	3	4	5
---	---	---	---	---

19. Rate your confidence in planning a systematic data collection strategy

1	2	3	4	5
---	---	---	---	---

20. What modifications would you suggest to improve the experimental setup used in this lab? Explain your reasoning. (5-7 sentences) *

SECTION 4: PRACTICAL SKILLS (IMPLEMENT)

21. Rate your current ability to connect three-phase electrical equipment safely

1	2	3	4	5
---	---	---	---	---

22. Rate your current ability to use digital multimeters for AC measurements

1	2	3	4	5
---	---	---	---	---

23. Rate your current ability to operate variable voltage sources (like variacs)

1	2	3	4	5
---	---	---	---	---

24. Rate your current ability to record experimental data systematically and accurately

1	2	3	4	5
---	---	---	---	---

25. When starting an induction motor for testing, you should: *

- ☐ Apply full voltage immediately
- ☐ Start with reduced voltage then increase gradually
- ☐ Start with maximum frequency
- ☐ Connect the load first, then power

26. Describe the most challenging aspect of implementing the experimental procedures and how you overcame it. (5-7 sentences) *

27. Rate the effectiveness of the virtual lab component in helping you understand theoretical concepts(Not effective) to 5 (Very effective) *

1	2	3	4	5
---	---	---	---	---

28. Rate the effectiveness of the virtual lab in preparing you for the physical experiments *

1	2	3	4	5
---	---	---	---	---

SECTION 5: ANALYSIS AND APPLICATION REASSESSMENT (OPERATE)

29. If the slip of an induction motor increases from no-load to full-load, the torque will:

- ☐ Always increase linearly
- ☐ Always decrease
- ☐ First increase then decrease after maximum torque point
- ☐ Remain constant

30. Rate your confidence in calculating slip from speed measurements

1	2	3	4	5
---	---	---	---	---

31. Rate your confidence in interpreting power factor variations in motor testing

1	2	3	4	5
---	---	---	---	---

32. Rate your confidence in analyzing speed-torque relationships from experimental data

1	2	3	4	5
---	---	---	---	---

33. Rate your confidence in drawing meaningful engineering conclusions from experimental results

1	2	3	4	5
---	---	---	---	---

34. Based on your experimental results, how would you optimize an induction motor for maximum efficiency? Consider both design and operating conditions. (7-10 sentences) *

35. Explain how the knowledge gained from this lab applies to real industrial applications. Give specific examples. (7-10 sentences) *

This content is neither created nor endorsed by Microsoft. The data you submit will be sent to the form owner.