



VISION

(BOR Resolution No. 25 s. 2016)

A premier state university with recognized excellence in engineering and technology education at par with leading universities in the ASEAN region.

MISSION

(Section 2 of P.D. No. 1518)

The University shall provide higher and advanced vocational, technical, industrial, technological and professional education and training in industries and technology and in practical arts leading to certificates, diplomas and degrees. It shall provide progressive leadership in applied research, developmental studies in technical, industrial, and technological fields and production using indigenous materials; effect technology transfer in the countryside; and assist in the development of small-and-medium scale industries in identified growth centers.

DEPARTMENT OF INDUSTRIAL EDUCATION GOALS

1. To periodically review the curricular program to produce competent and committed teachers.
2. To undertake development and innovative researches in Industrial Education.
3. To facilitate transfer of technology in Industrial Education through expanded and effective linkages with industry and other sectors.
4. To produce teachers who understand and appreciate genuine human ideas and values.
5. To imbue prospective teachers with desirable characteristics.

OBJECTIVES

1. Offer relevant and responsive curricular programs.
2. Initiate the conduct of researches in pedagogy and related educational technology.
3. Intensify community involvement through extension programs and projects.
4. Develop attitude, personal discipline, moral, social and cultural values of the students.
5. Equip prospective teachers with desirable personal and social characteristics, qualities and traits.



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BTVTED

AREA III

CURRICULUM AND INSTRUCTION

C. Assessment of Academic Performance

S.1. The program of studies has a system of evaluating student performance through a combination of the following:

S.1.2. summative tests such as mid-term and final examination;



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9. MS. Cherry notes that Nancy obtained a score of 40 points out of a possible 50 in the unit test. Which concept is exemplified by the statement?
A. evaluation B. testing C. assessment D. measurement
10. Which evaluative instruments provide information about the students' interest?
A. Anecdotal B. Rating scales C. Cumulative D. Checklists
11. It refers to the processes employed by academic staff to make judgements about the achievement of students in units of study and over a course of study.
A. Assessment Tasks B. Intended Learning Outcome
C. Learning Activities & Delivery Modes D. Content & Learning Resources
12. A diagnostic test should give a feed back to the teacher about the strengths and weaknesses of the student tested. Which type of test is NOT advisable to be used in a diagnostic test?
A. Multiple choice B. Essay C. True or false D. Short response
13. What is the greatest advantage of objective type of test?
A. It is very easy to score B. It has a wider coverage of skills
C. It has many test types D. Students can guess the answer
14. Assessment is important to teachers because of the decisions they will make about their students when teaching them. For teachers, which of the following is NOT among the functions of assessment?
A. make policy decisions regarding what is and is not appropriate for learners
B. monitor and improve the teaching-learning process
C. identify learners' needs and abilities
D. make decisions about how to implement learning activities
15. Which refers to the process by which certain attribute or characteristics of things are identified and differentiated from other attributes?
A. measuring B. evaluating C. testing D. decision-making
16. Which of the following is an example of a knowledge question or test item?
A. Trace the history of the Philippines
B. Compare the Spanish and American contribution to Filipino people.
C. Do you favor the Philippines to be one of the American states?
D. Predict what would have happened had we been one of the American states.
17. You are assigned in three sections of the fourth year students in compositions and literature. If you would like to know where to begin in the course it would be helpful if you give.
A. Diagnostic test B. Aptitude test C. Intelligence test D. Achievement test
18. Which of the following is not a criterion of a well-formulated objective?
A. interesting B. attainable C. observable D. realistic
19. Which true or false item below is well constructed?
A. The use of negative words is discouraged not unless they are capitalized
B. Negative test items are as valid and reliable as the positive items
C. Negative words in multiple choice items should not be written in small letters.
D. The use of NOT, NEVER, EXCEPT in test items can be overlooked by students hence these are discouraged
20. Which of these test will you administer to determine if your class is ready for the next unit your subject?
A. formative B. summative C. diagnostic D. periodic
21. Ms. Gonzalez, a Social Studies teacher, is about to discuss the Spanish colonization in the Philippines to his Grade 5 students. He asks open-ended questions and records the responses of his students. What was the purpose of his assessment?
A. Assessment as an instruction and providing feedback
B. Assessment as program evaluation or accountability
C. Assessment as diagnosing learner difficulties or misconceptions
D. Assessment as determining progress along a development continuum



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22. Its purpose is to provide evidence of a student's level of achievement in relation to curricular outcomes.

- A. assessment for learning
B. assessment of learning
C. assessment as learning
D. assessment tool

23. It pertains to diagnostics and formative assessment tasks which are used to determine learning needs, monitor academic progress of students during a unit or block of instruction and guided instruction.

- A. assessment for learning
B. assessment tool
C. assessment as learning
D. assessment of learning

24. Juanita discovered that some students had difficulty applying mathematical procedures to solve various word problems because of their lack of knowledge and skills of basic algebraic concepts and operations. What form of assessment did she use?

- A. diagnostic
B. placement
C. summative
D. formative

25. It is a process of collecting information about a learner's performance using a variety of methods and tools.

- A. assessment
B. evaluation
C. test
D. measurement

26. The first step in constructing teacher made tests is to

- A. Specify the learning objectives
B. Plan in advance on how to interpret the scores
C. Make a table of specification
D. Determine the number of items to be constructed

27. Measurement, evaluation and testing are not synonymous terms. Although evaluation is more inclusive than measurement, good measurement.

- A. has little relationship to testing
B. is a basis for good evaluation
C. is more important
D. is required for good testing

28. "Why is objective type of test commonly used in the government examination like Licensure Exam for Teacher"? This form of question is classified as:

- A. Application of rules
B. New method or procedure
C. Formulation of new questions
D. Reorganization of facts

29. It involves metacognitive processes like reflection and self-regulation to allow students to utilize their strengths and work on their weaknesses by directing and regulating their learning.

- A. assessment for learning
B. assessment of learning
C. assessment tool
D. assessment as learning

30. Which of the following shows the relevance of assessment to administrators?

- A. discover learning areas that require special attention
B. diagnose and identify students' learning needs
C. give feedback to students about their progress
D. plan and conduct faculty development programs

31. Behavioral objectives are objectives formulated in terms of pupil's performance or behavior that is readily.

- A. Observable and measurable
B. Observable and applicable
C. Observable and transferable
D. Observable and operable

32. The basis by which content is outlined and instructional procedures are developed is the:

- A. lesson plan
B. instructional materials
C. basic text
D. objective

33. Which is the most useful in estimating a student success in future studies?

- A. aptitude test
B. projective techniques
C. interest inventories
D. achievement test

34. Which task below is not in the psychomotor domain?

- A. evaluation
B. imitation
C. articulation
D. manipulation



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35. Which of the following statements is true?

- A. Placement test determine entry performance on course objectives
- B. Summative test help ensure that each set of learning tasks has been mastered before starting another topic
- C. Pre-assessment is done after remedial measures has been undertaken
- D. Formative tests are given after teaching the entire unit

36. "Given ten photographs of biological cells, the pupils will be able to identify six of them as either plant or animal cells". The "Given ten photographs of biological cells" phrase is a:

- A. terminal behavior
- B. standard or acceptable performance
- C. condition for learning
- D. an accomplishment to be realized

37. During his first meeting, Mr. Miranda gave a readiness test to determine the prerequisite skills and degree of mastery his students possess in relation to the course objectives or learning outcomes. He intends to use the results to determine where he will begin in his lesson plan and decide on the best mode of learning. Which form of assessment did he employ?

- A. diagnostic
- B. placement
- C. summative
- D. formative

38. The other term for completion type of test.

- A. Same-different
- B. Simple-recall
- C. Fill-in-blanks
- D. True-false

39. It is the process of judging the quality of what is good and what is desirable.

- A. Measurement
- B. Evaluation
- C. Testing
- D. performance

40. Which item type is best for measuring computing skills?

- A. Multiple choice
- B. Short answer
- C. Matching type
- D. True-false

41. The growth of attitudes or values is in the:

- A. psychomotor domain
- B. affective domain
- C. cognitive domain
- D. behavioral domain

42. Give the main difference of these two objectives (1) "to teach the importance of proper nutrition for good health" (2) "to give the importance of proper nutrition for good health"

- A. the first objective is teacher behavior while the second is pupil behavior
- B. the first objectives needs a longer time which the second doesn't
- C. the first objective is general which the second is specific
- D. the first objective is hard to do while the second is easy

43. Ms. MJ declared that Meela's score in the summative test indicates that she has learned the content exceedingly well and is ready to progress to the next unit of instruction. Which concept is illustrated?

- A. evaluation
- B. testing
- C. assessment
- D. measurement

44. The lack of plausible, but incorrect, alternative will cause the greatest difficulty when constructing items.

- A. True-false
- B. Essay
- C. Multiple choice
- D. Short answer

45. "To make statement "is an objective in a TLE lesson that is:

- A. correct
- B. specific
- C. none of the above
- D. vague

46. An assessment which is given periodically throughout the school year and it is used to prepare students for future assessments.

- A. formative assessment
- B. placement assessment
- C. interim assessment
- D. Individual assessment

47. Which of the following assessment is designed to measure the degree of learning that has taken place after a person has been exposed to specific learning experiences?

- A. trade test
- B. aptitude test
- C. achievement test
- D. socio-metric test



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48. The teacher compares students' responses in a test. For a specific response made by a student, the teacher decides that the student should receive a score of 6 (out of 10) in comparison to the answers provided by his/her classmates. How do you classify the test?
- A. Criterion-referenced test B. Aptitude test
C. Achievement test D. Norm-referenced test
49. Mr. Castro uses evidence of student learning to make judgement on student achievement against goals and standards. He does this at the end of a unit or period. Which purpose does assessment serve?
- A. assessment as learning B. assessment of learning
C. assessment tool D. assessment for learning
50. Ms. Cortes already taught division of decimals for three days, but she found out that majority of the grade six students still have difficulty in estimating the quotient and placing the decimal point. What is the most appropriate step to do?
- A. Initiate a peer tutoring program
B. Conduct remedial teaching after math class
C. Proceed to the next lesson
D. Give a diagnostic division of the whole number
51. All EXCEPT one is an example of a selection type item
- A. Interpretative exercise B. Multiple choice C. Short answer D. Matching test
52. At the end of instruction, Mr. De Jesus gave his students a long test to determine their level of achievement and mastery of the topics in the first quarter. Which of these concepts describe this particular role of assessment?
- A. placement B. diagnostic C. summative D. formative
53. Ms. Mara was ready to construct test items for the midterm exam. Which of the following can help make good test items based on the teaching objectives?
- A. A list of objectives she has taught. B. test of blueprint
C. Old copies of test papers. D. Constructions with other teachers.
54. Evaluative instruments which tells how well the students prosper in particular field is
- A. Rating scale B. Performance C. Checklists D. Questionnaire
55. It is defined as the process of determining the extent to which instructional objectives are attained.
- A. criterion-norm referenced B. test C. evaluation D. measurement
56. Which of the objectives below show overt behavior?
- A. To show love to one's country
B. To appreciate the value of democracy
C. To recite the preamble of the Constitution
D. To understand the importance of a Constitution
57. Why is multiple choice test commonly used and considered the best test type?
- A. It has less probability of guessing
B. It can develop the students' thinking ability
C. It measures a wide range of skills and concepts
D. It is very easy to score
58. Which of the following instructional objectives is well stated?
- A. Appreciate the use of test and measurement in education.
B. Know the important terms in evaluation and measurement.
C. Identify the different test from a given situation.
D. Understand the terms in measurement and evaluation.
59. Who among the following teachers is doing an evaluation?
- A. Teacher Romnick who is computing the final grades based on several criteria for assessment
B. Teacher Ronnel who is administering the chapter exam to his students.
C. Teacher Ronnie who is re-checking the test paper of his students
D. Teacher Michelle who is rating the finished project of her students.
60. Which of the following criteria is the most important in test construction?
- A. Items should be congruent with objectives
B. The stem should contain the central problem
C. Options should be almost the same length
D. A table of specification should be prepared



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ANSWER KEY:

1		21		41	
2		22		42	
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20		40		60	



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Name			Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli			SCORE

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)

a) When will the SR flip-flop changes its states?

b) When will the flip-flop respond?

c) When will the SR input signal change and the flip-flop respond?



MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH 6	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment ELECTRICAL SHOP 1
Name		Proctor		Time Administered 1:00-2:00	Date Administered January 24, 2023
Course BTTE-EL	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

Part 1: Encircle the letter of the correct answer.

1. At what state the flip flop changes?
 - a) When high input is applied.
 - b) When a clock pulse is applied depending upon the inputs.
 - c) When a low input is applied.
 - d) When clock pulse is applied at high state.
2. The SR inputs may change anytime but the flip-flop will respond only if the _____.
 - a) Clock signal is low
 - b) Clock signal is zero.
 - c) Clock signal is high.
 - d) Clock signal is blocked.
3. Which logic family is suitable for systems requiring high-speed operations?
 - a) Transistor-Transistor Logic
 - b) Metal Oxide Semiconductor Logic
 - c) Complementary Metal Oxide Semiconductor Logic
 - d) ECL - Emitter Coupled Logic
4. Which classification of monostable multivibrator allows the output signal to remain unstable as long as the trigger input is continuously applied?
 - a) Non-Retriggerable one shot
 - b) Retriggerable one shot circuit
 - c) Retriggerable shot circuit
 - d) Non-Retriggerable circuit
5. What are the two valid inputs of SR flip- flops?
 - a) (Low, High)
 - b) (01, 10)
 - c) (0,1)
 - d) (S,R)
6. Which logic family primarily employs bipolar devices such as diodes and transistors, as well as passive elements such as resistors and capacitors?
 - a) Saturated Bipolar Logic Family
 - b) Bipolar Logic Family
 - c) Unipolar Logic Family
 - d) Unsaturated Bipolar Logic Family



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7. In this family, transistors used in integrated circuits are driven to saturation.
 - a) Saturated Bipolar Logic Family
 - b) Bipolar Logic Family
 - c) Unipolar Logic Family
 - d) Unsaturated Bipolar Logic Family
8. The transistors used in integrated circuits in this family are not driven to saturation.
 - a) Saturated Bipolar Logic Family
 - b) Bipolar Logic Family
 - c) Unipolar Logic Family
 - d) Unsaturated Bipolar Logic Family
9. Which logic family outperforms Bipolar family in terms of speed and power consumption?
 - a) Saturated Bipolar Logic Family
 - b) Bipolar Logic Family
 - c) Unipolar Logic Family
 - d) Unsaturated Bipolar Logic Family
10. Which is not a member of the unipolar logic families?
 - a) PMOS or P-Channel MOS Logic Family
 - b) NMOS or N-Channel MOS Logic Family
 - c) CMOS Logic Family
 - d) Emitter Coupled Logic Family
11. Which logic family is best suited for high component density systems?
 - a) Transistor-Transistor Logic
 - b) Metal Oxide Semiconductor Logic
 - c) Complementary Metal Oxide Semiconductor Logic
 - d) ECL - Emitter Coupled Logic
12. This logic family is suitable for systems with low power consumption and progressively becomes the dominant logic family.
 - a) Transistor-Transistor Logic
 - b) Metal Oxide Semiconductor Logic
 - c) Complementary Metal Oxide Semiconductor Logic
 - d) ECL - Emitter Coupled Logic
13. Which classification of monostable multivibrator disregards the input voltage for as long as the output is unstable or until the output voltage returns to its stable states, high and low?
 - a) Non-Retriggerable one shot
 - b) Retriggerable one shot circuit
 - c) Retriggerable shot circuit
 - d) Non-Retriggerable circuit
14. It is known as free running because it alternates between two different output voltage levels while it is turned on.
 - a) Bi-stable multivibrator
 - b) Astable multivibrator
 - c) Monostable multivibrator
 - d) Unstable multivibrator
15. It generates the unstable state when triggered by an external source.
 - a) Bi-stable multivibrator
 - b) Astable multivibrator
 - c) Monostable multivibrator
 - d) Unstable multivibrator



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Part 2: A. What do these acronyms stand for? (2PTS EACH)

1. CMOS - _____
2. MOS - _____
3. ECL - _____
4. TTL - _____
5. RTL - _____
6. DCTL - _____
7. DTL - _____

B. Enumerate the following:

Saturated Bipolar Logic Families

1. _____
2. _____
3. _____
4. _____

Unsaturated Bipolar Logic Families

1. _____
2. _____

Unipolar Logic Families

1. _____
2. _____
3. _____



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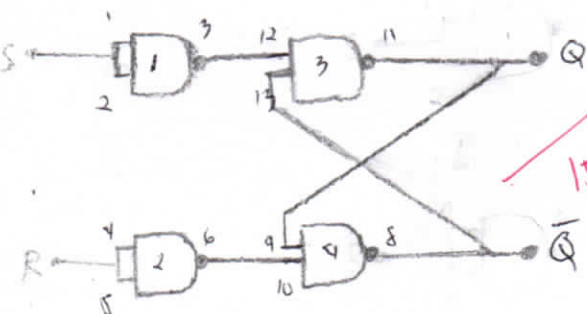
MAJOR EXAMINATION DETAILS

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Name DAVE A. CANTUBA		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

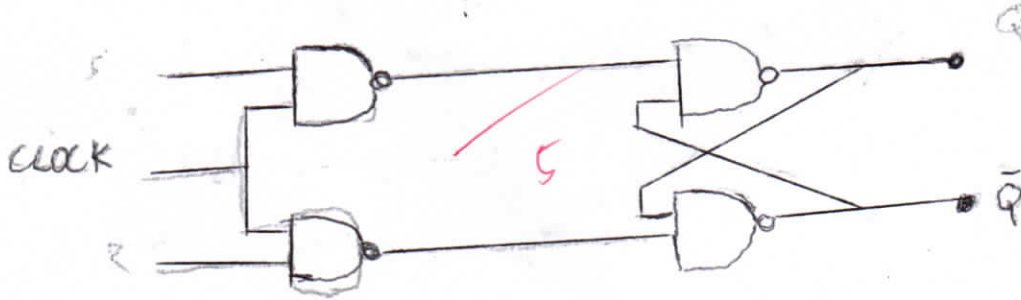
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



FLIP-FLOP ARE BISTABLE IMPLYING THAT IT CAN HAVE TWO STATE WHICH ARE HIGH AND LOW OR (0,1) (1,0), IT HAS TWO YALD OUTPUT WHICH ARE (0,1) | + The input is both zero is unaffected, and if the input is both high, the output will be unpredictable because set and reset cannot be synchronize

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



a) When will the SR flip-flop changes its states?

SR flipflop changes its state if clock pulse is applied depending upon the inputs

b) When will the flip-flop respond?

THE FLIP-FLOP RESPOND WHEN THE CLOCK SIGNAL IS HIGH

c) When will the SR input signal change and the flip-flop respond?

SR input will change anytime however the flipflop only respond when the clock signal is at high state



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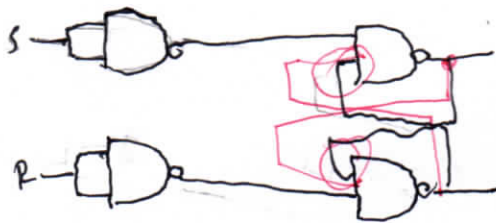
MAJOR EXAMINATION DETAILS

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Name Tadlas, Gil Felix		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 27/45

GENERAL INSTRUCTIONS:

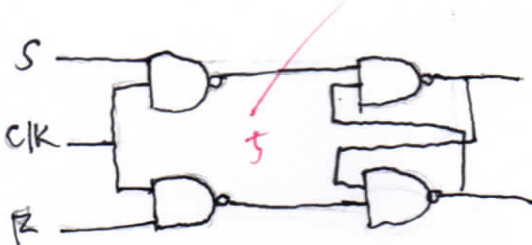
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



This circuit uses an NAND gate IC. The inputs are 10 or set condition & 01 or Reset condition.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



S	R	C	Q	Q'	
0	0	0	H	H	No change
0	1	0	H	H	No change
1	0	0	H	H	No change
1	1	0	H	H	No change
0	0	1	H	H	No change
0	1	1	0	1	Reset condition
1	0	1	1	0	Set Condition
1	1	1	?	?	Unpredictable

- a) When will the SR flip-flop changes its states?

It will change when there is a clock and depends on the input.

- b) When will the flip-flop respond?

The flip flop responds when the clock signal is set high.

- c) When will the SR input signal change and the flip-flop respond?

SR inputs can be change anytime but flip-flop respond only when clock is high.



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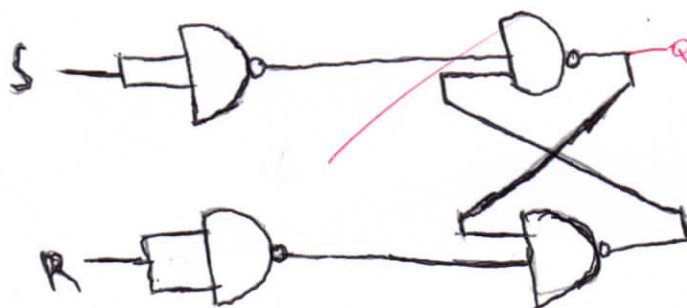
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name VILLARINO, RAYMOND M.		Proctor M. M. M. M.		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli	SCORE 45/45	

GENERAL INSTRUCTIONS:

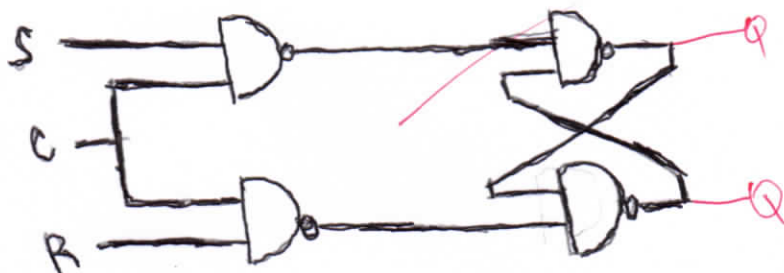
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



THE SR FLIP-FLOP HAVE 2 VALID INPUTS 01, 10. THEREFORE THE OUTPUT IS UNAFFECTED. WHEN THE INPUT IS BOTH ZERO THE OUTPUT IS UNAFFECTED THEN IF THE INPUT IS BOTH 1 THE OUTPUT IS UNPREDICTABLE

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



- a) When will the SR flip-flop changes its states?

WHEN CLOCK ^{signal} ~~signal~~ IS APPLIED, DEPENDING IN THE INPUT

- b) When will the flip-flop respond?

RESPOND ONLY WHEN THE CLOCK INPUT IS HIGH, OTHERWISE THERE BOTH ZERO

- c) When will the SR input signal change and the flip-flop respond?

THE SR MAY CHANGE ANYTIME BUT THE FLIP-FLOP RESPONDS ONLY WHEN THE CLOCK IS APPLIED HIGH



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MAJOR EXAMINATION FORM

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MAJOR EXAMINATION DETAILS

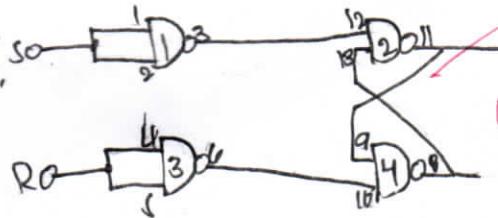
Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name CALUB EDIXERT R.		Proctor Ms. Bilibli		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

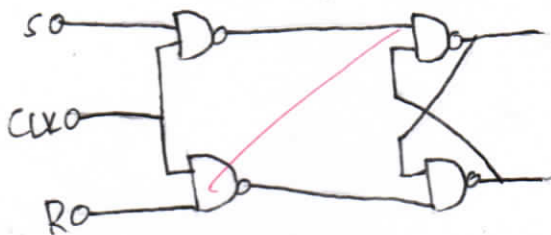
1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)

The SR flip flop has only two valid inputs, 0 and 0. When both inputs are zero the output is unaffected. Therefore, there will be no change in the output. On the other hand, when both inputs are high the output is indeterminate or unpredictable



2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table.

Answer the following questions. (30 PTS)



30

S	R	C	Q	Q'	Operation
0	0	0	hold	hold	no change
0	1	0	hold	hold	no change
1	0	0	hold	hold	no change
1	1	0	hold	hold	no change
0	0	1	hold	hold	no change
0	1	1	0	1	Reset condition
1	0	1	1	0	Set condition
1	1	1	??	??	Unpredictable

a) When will the SR flip-flop changes its states?

The SR Flip flop changes state only when the clock pulse applied depending upon the inputs.

b) When will the flip-flop respond?

The flip flop respond only when the clock signal is high. Otherwise, the SR input will both be held low

c) When will the SR input signal change and the flip-flop respond?

The SR input signal change anytime but the Flip flop change, when the clock signal is high.



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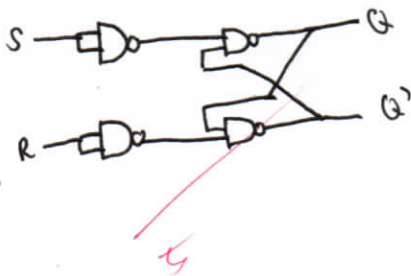
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name Glynis Nicole H. Olata.		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 30/45

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

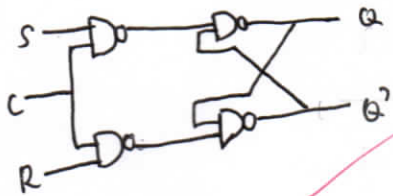
1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



The valid input of SR Flip-Flop is 00 or 01. Notice that the inputs are symmetrical. The SR flip-flop is also known as set-reset flip-flop.

The input signal/signals are needed to be triggered to the circuit to jump to the stable state. For example, when the output is at rest the input needs to be set at 1 and reset at 0. The valid input of SR flip-flop is 10 and 01.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



Truth Table @ the back.

- a) When will the SR flip-flop changes its states?

The SR flip-flop will change state when the input is 11 and 0 and the clock is high.

- b) When will the flip-flop respond?

The flip-flop respond when the clock is high and input is 1 and 0 or high and low.

- c) When will the SR input signal change and the flip-flop respond?

When the SR input signal is high and low, the clock is high the flip-flop will respond.



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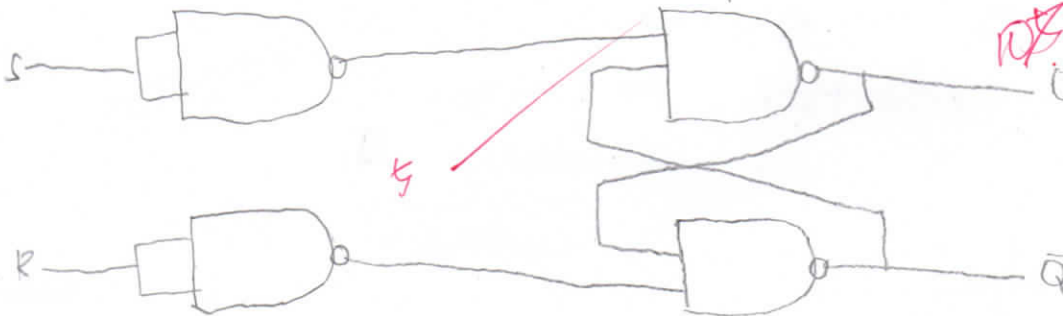
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name Galwe, Lennel John M.		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section BTTE-EL-C-3A-C	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

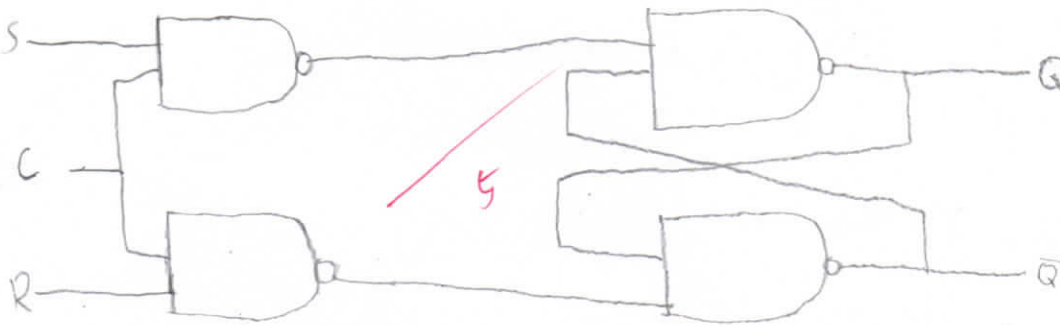
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



the valid input is 01 and 10.
 00 = no change
 01 = Reset condition
 10 = Set condition
 11 = unpredictable

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



a) When will the SR flip-flop changes its states?

When the clock pulse is applied depending upon the inputs.

b) When will the flip-flop respond?

When the input is high.

c) When will the SR input signal change and the flip-flop respond?

SR signal will change when the clock signal is high.



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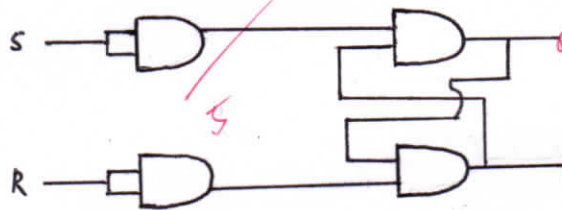
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name Saraza, Mark Joshua A.		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

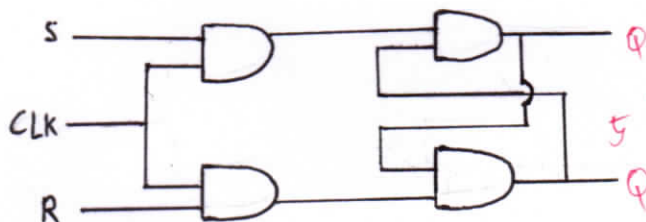
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



- SR Flip Flop has two valid input 01 and 10 when the input zero the output is unaffected that means, there will be no change in the output. On the other hand, when the both input are one the output is indeterminate

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



- a) When will the SR flip-flop changes its states?

The SR Flip-Flop will change in states if clock pulse is Applied depending upon the inputs

- b) When will the flip-flop respond?

The Flip-Flop response only will a clock high, otherwise SR input be Held 0 or low.

- c) When will the SR input signal change and the flip-flop respond?

The input will change anytime but the Flip Flop will response if the clock signal is high.



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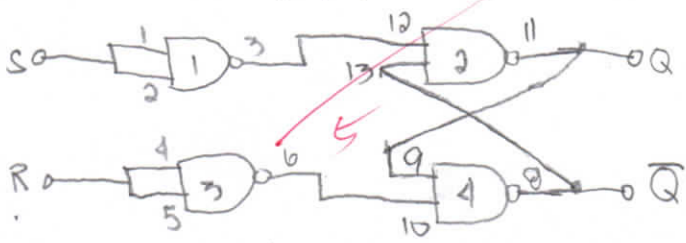
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name Merbert A. Aleno		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

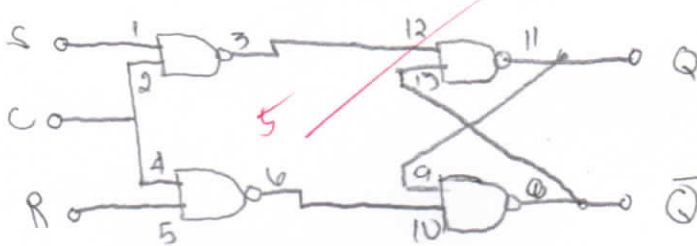
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



The SR Flip-Flop using IC7400 is a type of Bistable SR Flip-Flop. It has two valid inputs 01 and 10. If the both input is 0 the output will be unaffected. If the both input is 1 the output will be unpredictable.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



S	R	C	Q	Q̄	operation
0	0	0	Hold	Hold	No change
0	1	0	Hold	Hold	No change
1	0	0	Hold	Hold	No change
1	1	0	Hold	Hold	No change
0	0	1	Hold	Hold	No change
0	1	1	0	1	Reset condition
1	0	1	1	0	Set condition
1	1	1	??	??	Unpredictable

a) When will the SR flip-flop changes its states?

SR flip-flop changes its states depending upon the input.

b) When will the flip-flop respond?

If the pulse of clock is high. Otherwise SR input will be held low

c) When will the SR input signal change and the flip-flop respond?

The SR input will change anytime. But the flip-flop will respond only if the pulse of clock is high.



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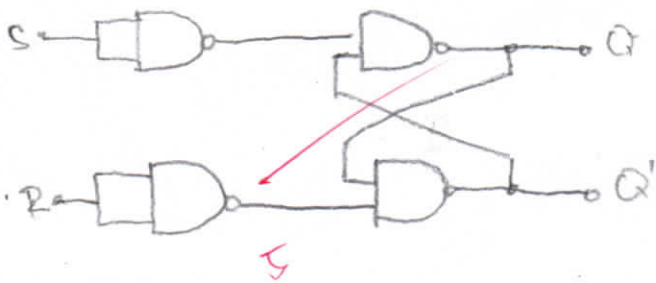
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name CASHIB, Perpito L. Jr.		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE 45/45

GENERAL INSTRUCTIONS:

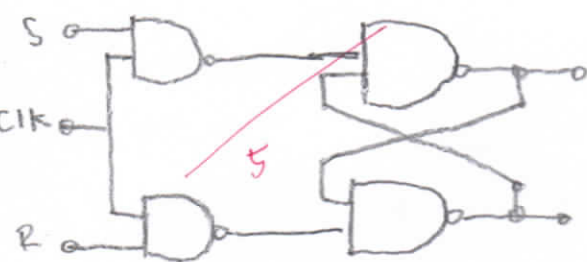
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



THIS SR Flip Flop has two valid input only 01 and 10 when both input is zero the output is unaffected. This means that there are no change in the input. On the other hand when both input is one the output is indeterminate or unpredictable.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



S	R	C	Q	Q'	Operation
0	0	0	Hold	Hold	No change
1	0	0	Hold	Hold	No change
0	1	0	Hold	Hold	No change
1	1	0	Hold	Hold	No change
0	0	1	Hold	Hold	No change
1	0	1	1	0	Set condition
0	1	1	0	1	Reset condition
1	1	1	?	?	unpredictable

a) When will the SR flip-flop changes its states?

The flip-flop change only when the clocked pulse is applied depending the input.

b) When will the flip-flop respond? The flip-flop response only with the clocked signal is high. otherwise the SR input both held zero.

c) When will the SR input signal change and the flip-flop respond?

The SR may change anytime but the flip-flop response only when the clocked signal is high.



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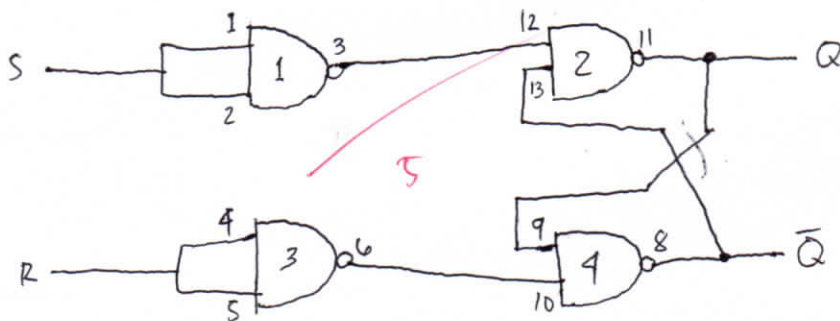
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MAJOR EXAMINATION DETAILS					
Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name SORIANO, GERALD A.		Proctor Ms. Bilibli		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section BTTE-EL-3A	Subject Instructor Mylene G. Bilibli	SCORE 45/45	

GENERAL INSTRUCTIONS:

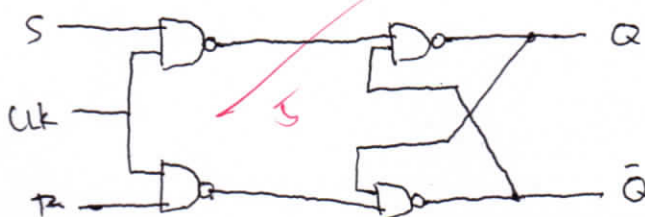
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



THE SR FLIP FLOP HAS TWO VALID INPUT WHICH ARE 10 AND 01. AND IF THE INPUT IS BOTH 0 THE OUTPUT WILL BE UNAFFECTED, WHILE IF THE INPUT IS BOTH HIGH THE OUTPUT WILL BE UNPREDICTABLE.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



S	R	C	Q	\bar{Q}	OPERATION
0	0	0	HOLD	HOLD (CHANGE)	NO CHANGE
0	1	0	HOLD	HOLD (CHANGE)	NO CHANGE
1	0	0	HOLD	HOLD (CHANGE)	NO CHANGE
1	1	0	HOLD	HOLD (CHANGE)	NO CHANGE
0	0	1	HOLD	HOLD (CHANGE)	NO CHANGE
0	1	1	0	1	RESET CONDITION
1	0	1	1	0	SET CONDITION
1	1	1	??	??	UNPREDICTABLE

a) When will the SR flip-flop changes its states?

IF CLOCK PULSE IS APPLIED DEPENDING UPON THE INPUT

b) When will the flip-flop respond?

IF THE CLOCK PULSE IS HIGH OTHERWISE SR INPUT WILL HOLD BE LOW

c) When will the SR input signal change and the flip-flop respond?

THE SR INPUT WILL CHANGE ANYTIME, BUT FLIP FLOP WILL ONLY RESPOND IF THE CLOCK PULSE IS HIGH OR SIGNAL



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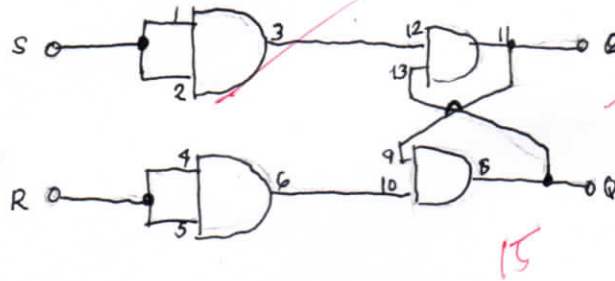
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment ET SHOP 3
Name FRANCIS DOMINICK REYES		Proctor MS. MYLENE G. BIBLI		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bibli	SCORE <u>45/45</u>	

GENERAL INSTRUCTIONS:

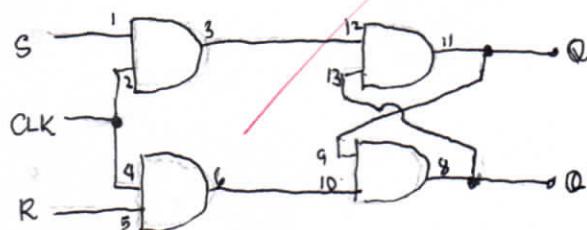
1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



- The S-R flipflop has two valid inputs (01, 10).
- The output is the complement of the input.
- The inputs can be interchanged as long as the outputs are also interchanged

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table. Answer the following questions. (30 PTS)



S	R	CLK	Q	Q'	OPERATION
0	0	0	HOLD	HOLD	no change
0	1	0	HOLD	HOLD	no change
1	0	0	HOLD	HOLD	no change
1	1	0	HOLD	HOLD	no change
0	0	1	HOLD	HOLD	no change
0	1	1	0	1	RESET
1	0	1	1	0	SET
1	1	1	x	x	unpredictable

- a) When will the SR flip-flop changes its states?

It will change when a clock pulse is applied depending on the inputs.

- b) When will the flip-flop respond?

The flip-flop will respond only if the clock input is HIGH.

- c) When will the SR input signal change and the flip-flop respond?

The SR input signal may change anytime but the flip-flop will ^{only} respond if the clock input is HIGH.



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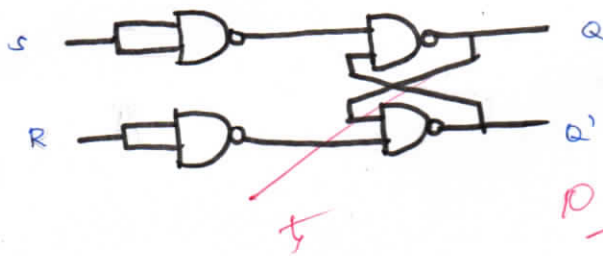
MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name RFBOL, ELLA MAY N.		Proctor Ms. Mylene G. Bilibli		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli	SCORE 45/45	

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

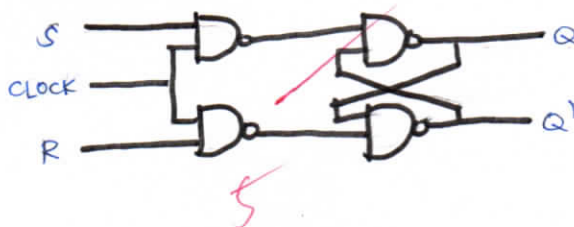
1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (15 pts)



SR flip-flop has only 2 valid inputs, 10 and 01. When both inputs are zero (0), the output will be unaffected. This means that there will be no change on the output. When both inputs are one (1), the output will be indeterminate or unpredictable.

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table.

Answer the following questions. (30 PTS)



S	R	CLOCK	Q	Q'	Operation
1	0	0	hold	hold	No change
0	1	0	hold	hold	No change
1	1	0	hold	hold	No change
0	0	0	hold	hold	No change
0	0	1	?	?	Unpredictable
0	0	1	hold	hold	No change
1	0	1	1	0	set condition
0	1	1	0	1	Reset condition

a) When will the SR flip-flop changes its states?

SR flip-flop will only change its state when a clock pulse is applied, depending on its inputs.

b) When will the flip-flop respond?

The flip-flop will only respond when clock signal is high. otherwise, the inputs will both be held low.

c) When will the SR input signal change and the flip-flop respond?

The SR inputs may change anytime, but the flip-flop will only respond when the clock is high.



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DMS

MAJOR EXAMINATION FORM

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MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject ETECH6L-2223-1	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name		Proctor		Time Administered 1:00-2:00	Date Administered January 25, 2023
Course BTTE-EL-3A	Year 3A	Section	Subject Instructor Mylene G. Bilibli		SCORE

GENERAL INSTRUCTIONS:

1. Read the directions carefully.
2. Answer in the given order and as directed.
3. Write neatly and clearly.

1. Construct the circuit diagram of the SR flip-flop using IC7400 and describe briefly how the circuit works. (10 pts)

2. Construct the Circuit diagram of Clocked SR Flip-Flop and its Truth table.

Answer the following questions. (20 PTS)

- a) When will the SR flip-flop changes its states?
The flip-flop changes state only when a clock pulse is applied depending upon the inputs.
- b) When will the flip-flop respond?
The flip-flop responds only when the clock signal is high. Otherwise, the SR inputs will both be held low.
- c) When will the SR input signal change and the flip-flop respond?
The SR inputs may change anytime but the flip-flop will respond only if the clock signal is high.



**TECHNOLOGICAL UNIVERSITY OF THE PHILIPPINES
CAVITE CAMPUS**

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DMS	MAJOR EXAMINATION FORM	Page 1/1
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MAJOR EXAMINATION DETAILS					
Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input checked="" type="checkbox"/> MIDTERM EXAMINATION <input type="checkbox"/> FINAL EXAMINATION		Subject PROG5 Laboratory	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name Gavin B. Lutan		Proctor Ms. Roacelene P. Cabanela		Time Administered 8:00 AM	Date Administered January 24, 2023
Course BTTE-CP	Year 3 rd	Section 3A	Subject Professor Ms. Roacelene P. Cabanela		SCORE 19/20

- GENERAL INSTRUCTIONS:**
1. Read the directions carefully.
 2. Answer in the given order and as directed.
 3. Write neatly and clearly.

Symbols and Designators: For Symbols, draw the correct symbols per each component. For designator, write the correct designator per each component. (20 items)

COMPONENT	SYMBOL ⁹	DESIGNATOR ¹⁰
EX: RESISTOR		R
LED (Light Emitting Diode)		D ✓
Integrated Circuit		U ✓
Capacitor		C ✓
Ground		GND ✓
Battery		B ✓
Switch		S ✓
AC Source		PS ✓
Potentiometer		R ✓
Button		S ✓
AND Gate		U ✓



MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input checked="" type="checkbox"/> MIDTERM EXAMINATION <input type="checkbox"/> FINAL EXAMINATION		Subject PROG5 Laboratory	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name DIAS, JOHN FLECHER A.		Proctor Ms. Roacelene P. Cabancla		Time 8:10 AM Administered	Date Administered 01/24/23
Course BTTE-CP	Year 3 rd	Section 3A	Subject Professor Ms. Roacelene P. Cabancla		SCORE 11/20

GENERAL INSTRUCTIONS:

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2. Answer in the given order and as directed.
3. Write neatly and clearly.

Symbols and Designators: For Symbols, draw the correct symbols per each component. For designator, write the correct designator per each component. (20 items)

COMPONENT	SYMBOL ⁶	DESIGNATOR ⁵
EX: RESISTOR		R
LED (Light Emitting Diode)		D /
Integrated Circuit		U /
Capacitor		C /
Ground		GND /
Battery		(BT)
Switch		SW/S /
AC Source		(S)
Potentiometer		(K)
Button		(B)
AND Gate		(G)

MAJOR EXAMINATION DETAILS					
Major Exam:	<input type="checkbox"/> PRELIMINARY EXAMINATION <input checked="" type="checkbox"/> MIDTERM EXAMINATION <input type="checkbox"/> FINAL EXAMINATION	Subject PROGS LECTURE	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment
Name	Proctor Ms. Roacelene P. Cabanela		Time 6:00 AM Administered	Date Administered 01/29/23	
Course	Year	Section	Subject Professor	SCORE	
BTTE-CP	3 rd	3A	Ms. Roacelene P. Cabanela	36/50	

GENERAL INSTRUCTIONS:	I - 7 II - 15 III - 14
1. Read the directions carefully.	
2. Answer in the given order and as directed.	
3. Write neatly and clearly.	

IDENTIFICATION: Identify the words defined by the sentences. Write your answers before the number. (15 items)

- Prototyping 1. It is a process where we can develop components in a flexible manner than can be quickly updated and modified to test a variety of options when developing a project or product.
- PULSE WIDTH MODULATION 2. It is a method of controlling the average voltage.
- SINGLE PLE SINGLE THROW 3. It is a switch that has one input and one output.
- ARDUINO SOFTWARE IDE 4. It is a software that allows you to write code and upload it to your Arduino hardware.
- ETHERNET 5. It allows you to easily connect your Arduino to the internet.
- ____ 6. Also known as photo resistor, photocell or photo conductor.
- ____ 7. It is defined as the change in speed or velocity over time.
- ____ 8. It is designed to facilitate prototyping.
- ____ 9. It is a temperature sensor that outputs an analog signal which is proportional to the instantaneous temperature.
- TINKERCAD 10. It is a free online service for creating basic 3D shapes and developing digital prototypes of electronic components.
- POTENTIOMETER 11. It is a device that is used to measure the voltage or electric potential. It provides a variable resistance when the shaft of the device is turned.
- BREADBOARD 12. A solderless device for temporary prototype with electronics and test circuit designs.
- LOOP () OR VOID LOOP () 13. It includes the statements, which are executed repeatedly. It is called the execution block.
- ULTRASONIC DISTANCE SENSOR 14. It is a sensor which uses ultrasonic sound for echolocation to measure the distance between the sensor and the object the sound is being reflected back from.
- FRITING 15. It is a circuit board with connections on it that contains a motor driver chip that drives motors.

MAJOR EXAMINATION DETAILS					
Major Exam:	<input type="checkbox"/> PRELIMINARY EXAMINATION <input checked="" type="checkbox"/> MIDTERM EXAMINATION <input type="checkbox"/> FINAL EXAMINATION	Subject PROGS LECTURE	School Year 2022 - 2023	Semester <input type="checkbox"/> 1 st <input checked="" type="checkbox"/> 2 nd	Room Assignment 204
Name	Proctor Ms. Roacelene P. Cabanela		Time 3:00 Administered	Date Administered 01-29-23	
Course	Year	Section	Subject Professor	SCORE	
BTTE-CP	3 rd	3A	Ms. Roacelene P. Cabanela	49/50	

GENERAL INSTRUCTIONS:	I - 15 II - 15 III - 19
1. Read the directions carefully.	
2. Answer in the given order and as directed.	
3. Write neatly and clearly.	

IDENTIFICATION: Identify the words defined by the sentences. Write your answers before the number. (15 items)

- Prototyping 1. It is a process where we can develop components in a flexible manner than can be quickly updated and modified to test a variety of options when developing a project or product.
- PULSE WIDTH MODULATION 2. It is a method of controlling the average voltage.
- SINGLE PLE SINGLE THROW 3. It is a switch that has one input and one output.
- ARDUINO SOFTWARE IDE 4. It is a software that allows you to write code and upload it to your Arduino hardware.
- ETHERNET SHIELD 5. It allows you to easily connect your Arduino to the internet.
- LDR 6. Also known as photo resistor, photocell or photo conductor.
- ACCELERATION 7. It is defined as the change in speed or velocity over time.
- PROTO SHIELD 8. It is designed to facilitate prototyping.
- LM35 9. It is a temperature sensor that outputs an analog signal which is proportional to the instantaneous temperature.
- TINKERCAD 10. It is a free online service for creating basic 3D shapes and developing digital prototypes of electronic components.
- POTENTIOMETER 11. It is a device that is used to measure the voltage or electric potential. It provides a variable resistance when the shaft of the device is turned.
- BREADBOARD 12. A solderless device for temporary prototype with electronics and test circuit designs.
- VOID LOOP () 13. It includes the statements, which are executed repeatedly. It is called the execution block.
- ULTRASONIC RANGE FINDER 14. It is a sensor which uses ultrasonic sound for echolocation to measure the distance between the sensor and the object the sound is being reflected back from.
- MOTOR SHIELD 15. It is a circuit board with connections on it that contains a motor driver chip that drives motors.



TRUE or FALSE: Write TRUE if the statement is correct and FALSE otherwise. Write your answers before the number. CAPITAL LETTERS (15 items)

- TRUE 1. Arduino Micro is the smallest board in the Arduino Community. It offers a high number of connections with a minimum interface.
- FALSE 2. The Arduino Due is the first official Arduino on wheels. ROBOT
- TRUE 3. Diecimila means 10,000 thousand in Italian and it denoted that there is more than ten thousand Arduino boards has created.
- FALSE 4. Power the LilyPad Arduino with more than 5.5 volts, or plug the power in backwards.
- TRUE 5. Over the years Arduino has been the brain of thousands of projects, from everyday objects to complex scientific instruments.
- TRUE 6. The coding screen is divided into two blocks. The setup is considered as the preparation block, while the loop is considered as the execution block.
- FALSE 7. Every message sent on the UART is in the form of 8 byte or 1 bit, where 1 bit = 8 byte. 8 BYTES = 1 BIT
- TRUE 8. The PIR Motion Sensor Switch can detect the Infrared Rays released by human body.
- TRUE 9. Relays allow low-power microcontrollers to handle circuits that uses much higher power than what the board can handle directly.
- FALSE 10. A Temperature Sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves and converts the reflected sound into an electrical signal. ULTRASONIC DISTANCE SENSOR
- TRUE 11. The LCD Keypad Shield is arduino compactible boards, to provide a user-friendly interface that allows users to display what they want to and make selections etc.
- FALSE 12. HIGH means the voltage is approx. to 0V. 3 OR 5V.
- FALSE 13. Open circuits - have open ends, due to which electrons can flow through the circuit.
- FALSE 14. NC (Normally Close) is the state of the button is in rest. It means that a terminal in such a condition is not connected. NO (NORMALLY OPEN)
- TRUE 15. Electronic circuits are the lifelines of various electrical appliances.



TRUE or FALSE: Write TRUE if the statement is correct and FALSE otherwise. Write your answers before the number. CAPITAL LETTERS (15 items)

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- TRUE 15. Electronic circuits are the lifelines of various electrical appliances.



ENUMERATION: List down the items per category. (20 items)

1 – 3 Arduino Tools

1. ARDUINO ~~IDE~~ TOOL WEB, *Web Editor*
2. ARDUINO SOFTWARE IDE
3. ARDUINO IOT CLOUD

4 – 7 Give 4 Parts of Arduino IDE

4. MENU BAR
5.
6. BUTTONS
7. TOOL CONSOLE

8 – 10 Give 3 Arduino Data Types

8. FLOAT DATA TYPES
9. CHAR DATA TYPES
10. INT DATA TYPES

11 – 12 Two types of circuits

11. NO – NORMALLY OPEN
12. NC – NORMALLY CLOSE

13 – 16 Major four types of switches in Arduino

13. SINGLE POLE DOUBLE THROW (SPDT)
14. SINGLE POLE SINGLE THROW (SPST)
15. SINGLE POLE THREE THROW (3PST)
16. DOUBLE POLE DOUBLE THROW (DPDT)

17 – 20 Give 4 Standard Libraries of Arduino

17. WIFI LIBRARY
18. GSM LIBRARY
19. AUDIO LIBRARY
20. ETHERNET LIBRARY



ENUMERATION: List down the items per category. (20 items)

1 – 3 Arduino Tools

1. ARDUINO IOT
2. ARDUINO WEB
3. ARDUINO IDE

4 – 7 Give 4 Parts of Arduino IDE

4. TEXT EDITOR
5. TOOLBAR BUTTON
6. FILE NAME
7. MENU BAR

8 – 10 Give 3 Arduino Data Types

8. INT
9. FLOAT
10. CHAR

11 – 12 Two types of circuits

11. OPEN CIRCUIT
12. CLOSE CIRCUIT

13 – 16 Major four types of switches in Arduino

13. SINGLE POLE SINGLE THROW
14. SINGLE POLE DOUBLE THROW
15. SINGLE POLE THREE THROW
16. DOUBLE POLE DOUBLE THROW

17 – 20 Give 4 Standard Libraries of Arduino

17. SD LIBRARY
18. AUDIO LIBRARY
19. WIFI LIBRARY
20. LCD TFT LIBRARY

MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject PROG5 LECTURE	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment 205
Name Gleoneil Lagasca		Proctor	Time Administered 1:15 PM	Date Administered 02/01/23	
Course BTTE-CP	Year 3 rd	Section 3A	Subject Professor Ms. Roacelene P. Cabanela	SCORE 50	

- GENERAL INSTRUCTIONS:**
1. Read the directions carefully.
 2. Answer in the given order and as directed.
 3. Write neatly and clearly.
- to early submissions will be added to P.T.*

FILL IN THE BLANKS: Read each statement or question below carefully and fill in the blank(s) with the correct answer. Choose the correct words on the box.

left ✓	click ✓	start ✓	junction dot ✓	4-way intersection ✓
open-source ✓	positive ✓	pcb ✓	white ✓	breadboard ✓
right ✓	click ✓	logical ✓	connected ✓	intersection ✓
outputs ✓	hover ✓	schematic ✓	crossing ✓	junction ✓
fritzing ✓	inspector ✓	green ✓	palette windows ✓	junction dot ✓
arduino ✓	power ✓	microprocessors ✓	red ✓	part creator ✓
symbol ✓	ground ✓	title block ✓	solder mask ✓	pcb ✓
breadboard ✓	top ✓	prototyping ✓	purple ✓	schematic ✓
designator ✓	negative ✓	sanded ✓	substrate ✓	silkscreen ✓
inputs ✓	bottom ✓	saving ✓	fiberglass ✓	tinkercad ✓

- 20
- 1-2. arduino is a prototype platform (open-source) based on an easy-to-use hardware and software.
 3. breadboard is a solderless device for temporary prototype with electronics and test circuit designs.
 - 4-5. Every symbol on your circuit needs to have its own unique designator.
 - 6-9. For most electrical schematics, with some minor exceptions, signal inputs will always come from the left and signal outputs will always go to the right.
 10. Fritzing is easy to download, very popular environment for creating prototypes of projects, schemes, and illustrations.
 - 11-16. In arranging schematic, power or positive voltage will start from the top and ground or negative voltage will go to the bottom.
 - 17-19. In wiring components on tinkercad, you need to click hover to the destination and click again.
 20. inspector appear that lets you edit the properties of Tinkercad components.

MAJOR EXAMINATION DETAILS

Major Exam: <input type="checkbox"/> PRELIMINARY EXAMINATION <input type="checkbox"/> MIDTERM EXAMINATION <input checked="" type="checkbox"/> FINAL EXAMINATION		Subject PROG5 LECTURE	School Year 2022 - 2023	Semester <input checked="" type="checkbox"/> 1 st <input type="checkbox"/> 2 nd	Room Assignment 205
Name JHONA D VALLESTERO		Proctor	Time Administered 1:15 pm	Date Administered Feb. 1, 2023	
Course BTTE-CP	Year 3 rd	Section 3A	Subject Professor Ms. Roacelene P. Cabanela	SCORE 44	

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symbol ✓	ground ✓	title block ✓	solder mask ✓	pcb ✓
breadboard ✓	top ✓	prototyping ✓	purple ✓	schematic ✓
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 20. Inspector appear that lets you edit the properties of Tinkercad components.



21. microprocessors can be programmed to gather information from sensors and interpret that information.
22. microprocessor pcbs is an electronic circuit used in devices to provide mechanical support and a pathway to its electronic components.
23. prototyping is a process where we can develop components in a flexible manner than can be quickly updated and modified to test a variety of options when developing a project or product.
24. Remember to always include a title block on each page of your schematic.
25. sanded surface allow image to stick better at PCB.
- 26-27. saving a project is highly recommended at start and every now and then while working at Fritzing.
28. schematic is a representation of the elements of a system using abstract, graphic symbols rather than realistic pictures.
29. Separate your schematic into logical blocks.
- 30-33. Solder mask is most commonly green in color but nearly any color is possible. We use red for almost all the SparkFun boards, white for the IOIO board, and purple for the LilyPad boards.
34. soldermask is overlaid onto the copper layer to insulate the copper traces from accidental contact with other metal, solder, or conductive bits.
- 35-36. The base material or substrate of PCB is usually fiberglass.
- 37-39. The lack of a junction dot will signify that the wires are only crossing or not connected.
40. The palette windows include the Part Library, Part Inspector, Undo History and Navigator.
41. The part creator is a tool to modify parts or create new parts for Fritzing.
- 42-44. The Project View is where a virtual electronic circuit is built and edited in breadboard, schematic or pcb view.
45. The silkscreen adds letters, numbers, and symbols to the PCB that allow for easier assembly and indicators for humans to better understand the board.
46. tinkercad is a free online service for creating basic 3D shapes and developing digital prototypes of electronic components.
47. When adding junctions for intersecting wires, it's also recommended to avoid a 4-way intersection.
- 48-50. Whenever you have two wires that form a junction and share an electrical connection, that intersection needs to have a junction dot.



21. Microprocessors can be programmed to gather information from sensors and interpret that information.
22. PCB is an electronic circuit used in devices to provide mechanical support and a pathway to its electronic components.
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- 35-36. The base material or substrate of PCB is usually sanded.
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