CSCI 1900 - Homework 20 - B

**Section 13.2: Finite State Machines** *(19)*

1. Given the following formal description of a finite state machine $FSM=\left(S, A, f,s\_{0}, F\right)$, where

$S= \left\{s\_{0}, s\_{1}, s\_{2 }\right\}$

$$A= \left\{a, b\right\}$$

$$F= \left\{s\_{2}\right\}$$

|  |  |  |
| --- | --- | --- |
|  | *a* | *b* |
| *s*0$$f=$$ | *s*1 | *s*0 |
| *s*1 | *s*1 | *s*2 |
| *s*2 | *s*1 | *s*0 |

* 1. Draw the diagraph of the *FSM* (1)
	2. Describe the strings that are accepted by *FSM* (1)
1. Write the formal description of the following *FSM*, which accepts strings containing at least 2 *a* ’s. (5)



1. Give the formal description and draw the finite state machine with an input alphabet {*a*, *b*} and accepts all strings that begin with *a* and end with *b.* (6)
2. Give the formal description and draw the diagraph of the finite state machine with an input alphabet {0, 1} and accepts all strings that contain an odd number of 0’s*.* (6)