

বাংলাদেশ ইউনিভার্সিটি অব প্রফেশনালস্

সেকশন/গ্রুপ... Section-B



ইনভিজিলেটরের স্বাক্ষর

মোট পৃষ্ঠা সংখ্যা... ০৭ ...টি

BSc in CSE-17 Final Exam (Spring) Feb-21 পরীক্ষা (Examination), 20 21

বিষয় (Subj): Computer Interfacing পত্র/কোর্স নং (Paper/Course No): CSE-405

পত্র/কোর্সের নাম (Paper/Course Name): CSE-17 কেন্দ্র (Center): MIST

রেজিঃ নম্বর (Regn No): 131401170018 শিক্ষাবর্ষ (Session): 2019-2020

রোল নম্বর (Roll No): 201714018 তারিখ (Date): 14-02-2021

INSTRUCTIONS FOR EXAMINEE

1. Examinees are forbidden to write their names either on outer cover page or anywhere of the answer scripts. In case of violation, the answer script will not be evaluated.

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2. Examinees must mention their roll and registration number along with session on the outer cover page of the answer scripts clearly. Otherwise, answer scripts may not be evaluated.

3. Students will write his examination roll number on the top left corner and section-A/B on the top right corner of each page. All pages must be numbered chronologically at the bottom center in x of y format. (for example: 1 of 21)

4. In no case, an examinee will be allowed to start the examination half an hour after the commencement of examination.

5. The Camera of the examinee MUST always be ON during the examination and answer script submission. If Camera is OFF then that online examination will be treated as CANCELLED.

6. The focus of the camera should be such that the invigilator(s) can see the script and examinee with his/her surroundings.

7. Students are to share their entire screen of desktop/laptop to the invigilator throughout the online examination. .

8. Browsing any files other than the given question paper (PDF) and/or online sites other than the respective allowed examination platform (e.g Zoom, Google classroom etc.) is strictly prohibited.

9. Online invigilators reserve the right to take remote access of the examinee's desktop/laptop and investigate as needed at any point during the examination or even after the examination

10. Students without laptop/desktop cannot appear exam online by using mobile phone. Students not possessing laptop/desktop, will have to appear examination Physically at MIST.

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নিরীক্ষকের স্বাক্ষর

Continued.....

INSTRUCTIONS FOR EXAMINEE

11. Examinees must abide by the instructions of chief invigilator if there are no definite instructions on any subject/matter.
12. No examinee will be allowed to leave the examination session until an hour has elapsed from the commencement of examination.
13. Legal action will be taken against the examinees those are trying to adopt/adopting unfair means/exhibiting unbecoming conduct in the examination hall and found guilty for any breach of discipline as per rule.
14. Invigilators will have complete authority of deducting marks from any student attempting unfair means.
15. All rough works should be done in the same paper used as answer scripts. Answer scripts should be submitted intact. Papers used for rough work should be pen through by the examinees and submitted along with the answer script.
16. The answer scripts submitted beyond specified time will be treated as CANCELLED.
17. The examinee will send his/her scanned examination script in PDF format to the following e-mail addresses:
 - (a) e-mail address of subject invigilator/examiner.
 - (b) Central Database Scheme (coursecode@mist.ac.bd)Example: EECE433@mist.ac.bd
18. The examinee has to preserve the original answer script of every examination and be ready to submit whenever asked for.
19. Answer script should be the A4 size papers with a cover page provided by Department. Examinee has to fill up his/her necessary details on the cover page. Section A and section B must be clearly marked on the cover page like. **Section A** or **Section B**
20. Examination duration for each subject will be two hours (section-A for one hour + section B for One hour). In between students will get 15 minutes time to submit the answer script of section A and 5 minutes time to issue the question for section B . After completion of 01 hour examination time for section B, students will get 15 minutes to submit the answer script of section B.
21. After completion of written examination (online/physical), viva will be conducted by the respective faculty of that subject.

Section-BAns. to the ques. no.-05(a)

Overshoot problem occurs in the time of controlling the speed of a DC motor, when the set point of the reference voltage is changed. In that case, the system variable - motor speed overshoots the new set point and bounces up and down for a while. It takes a time, settling time to get to the new value. This type of response is called an underdamped response and is called the overshoot problem.

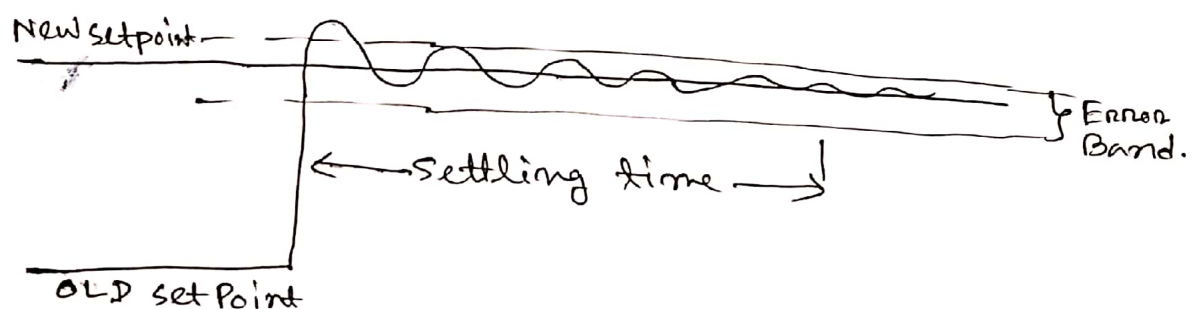
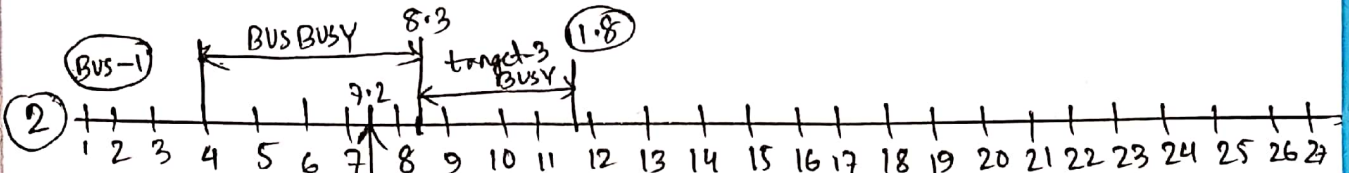
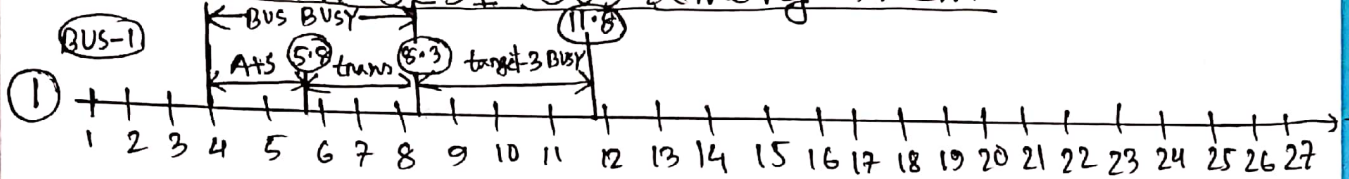


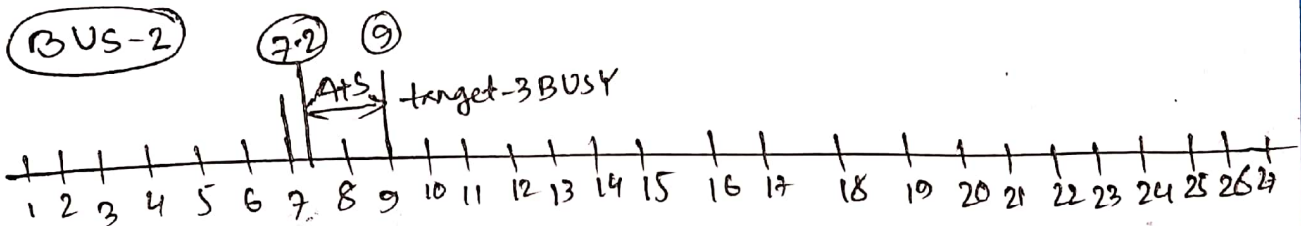
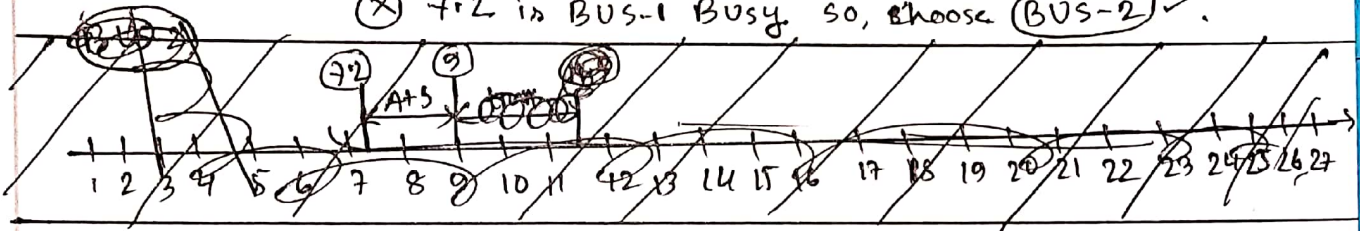
Fig: overshoot problem.

Ans. to the ques. no.-05(b)

Two common SCSI Bus among them.

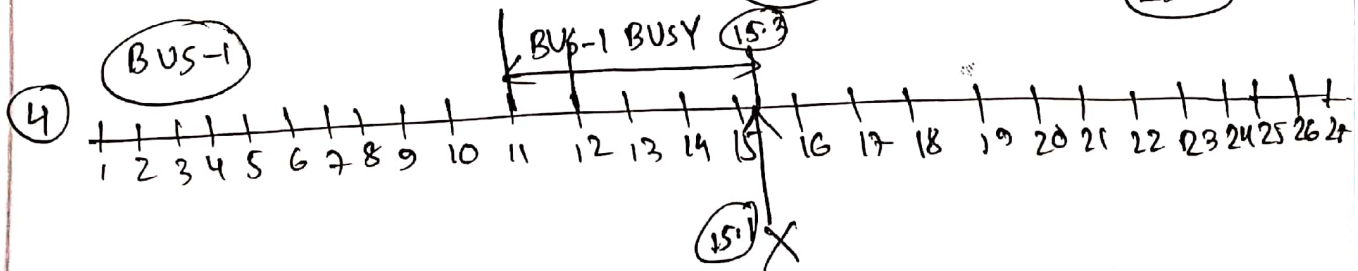
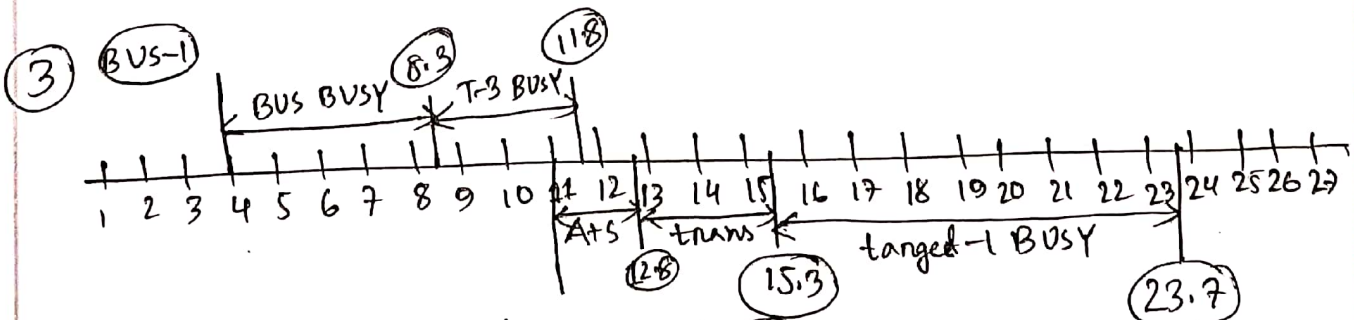


7.2 is BUS-1 BUSY, so, choose BUS-2 ✓.

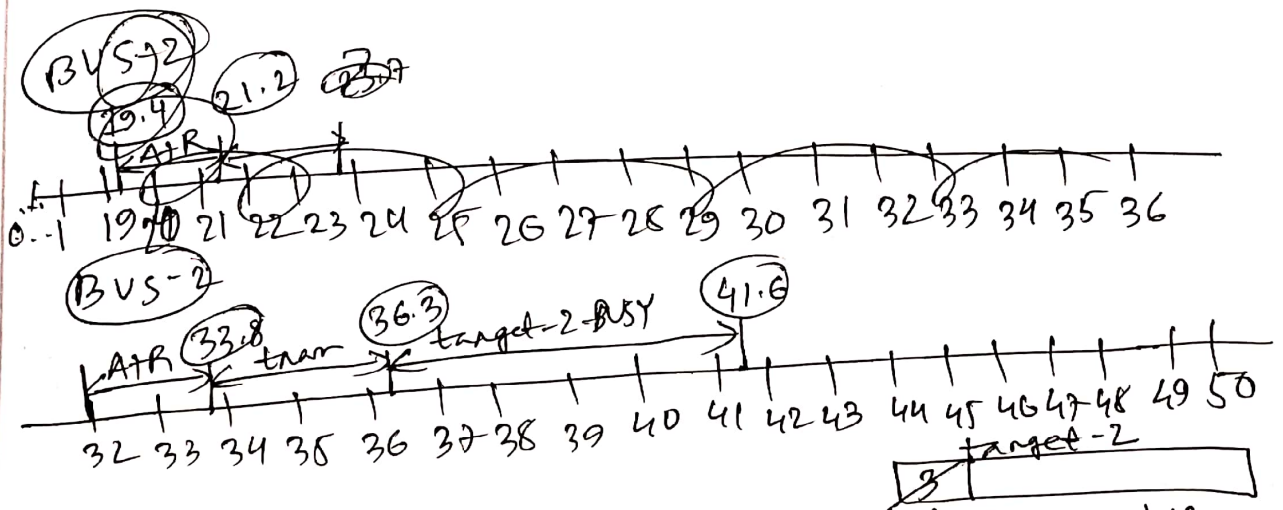
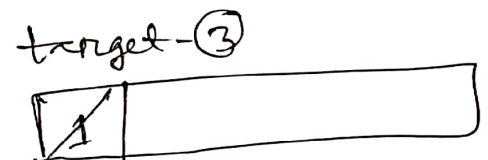
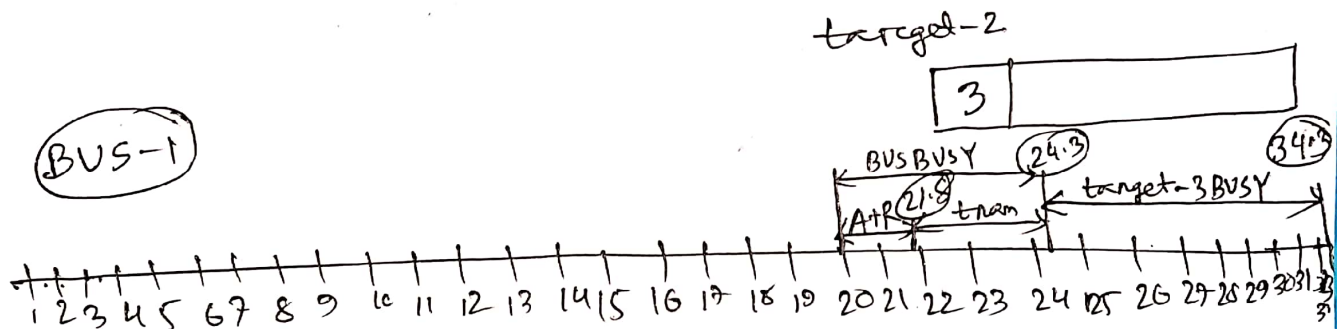
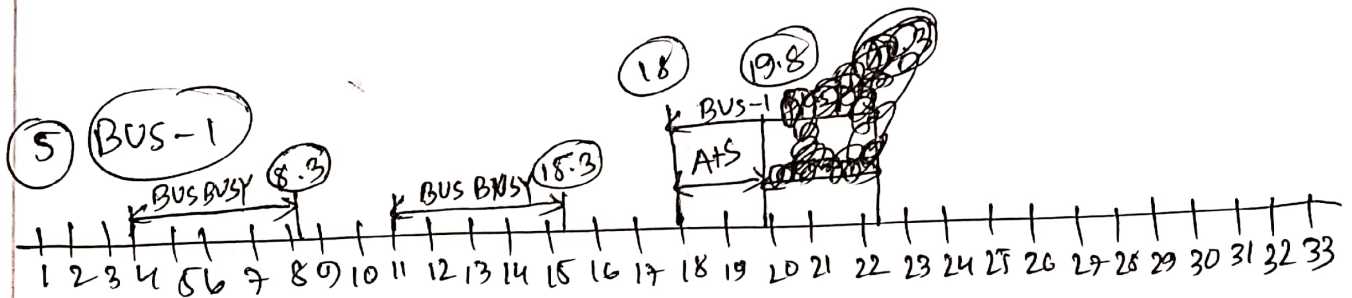
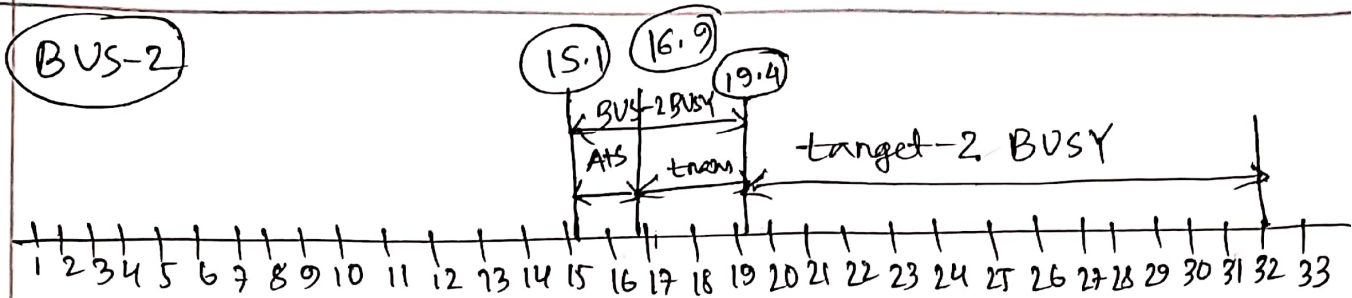


target-3 queue

| | |
|---|--|
| 1 | |
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so, choose BUS-2



So, $t = 41.6$ with all controllers and BUS will become free.

Ans. to the ques. no.-06(a)

In DMA controller the Mode Set Register has a RP or Rotating Priority flag which can be set to enable circular priority in a DMA. Mode set register has also other flags. But if the RP is set to 1 then the priority will be rotating but if it is set to 0 then fixed priority will be set. In this way priority in DMA channel be set at a DMA controller.

Comparison between consecutive transfer and control ~~the~~ override transfer are discussed below:

Consecutive Transfer:

In consecutive transfer Burst mode happens and all the peripherals are serviced according to priority before relinquish the control of BUS to the microprocessor. So, microprocessor holds until all the peripherals are complete their

transfers.

Control Override:

In control Override, peripherals are serviced according to some priority. But they can be interrupted anytime. So, microprocessor can be interrupted. When, a peripheral is interrupted it goes to idle and after μP becomes idle and holds again the peripheral transfer happens. After each DMA transfer it checks for the HLDA line insure that CPU is still holding or not.

Ans. to the ques. no. - 06(b)

I will use servo motor for greater precision. The precision happens with the following diagram.

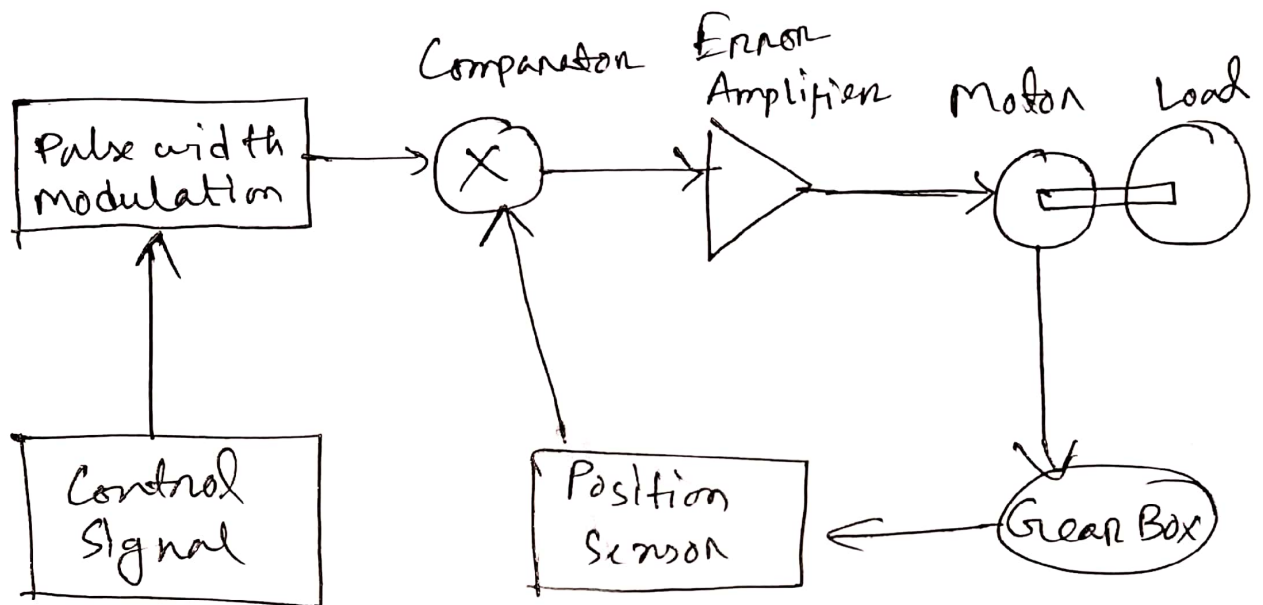


Fig: Working principle of Servo motor DC.

Shaft and Gear Box and Position Sensor helps the comparator to choose the desired position of rotation and the amplifier fixed that error. pulse width fixes the precision on step angle to rotate the motor. in this way robot will grab the cup of coffee by moving arm precisely.

Ans. to the ques. no. -06(c)

Successive Approximation A/D converter of 10-bit is designed below:

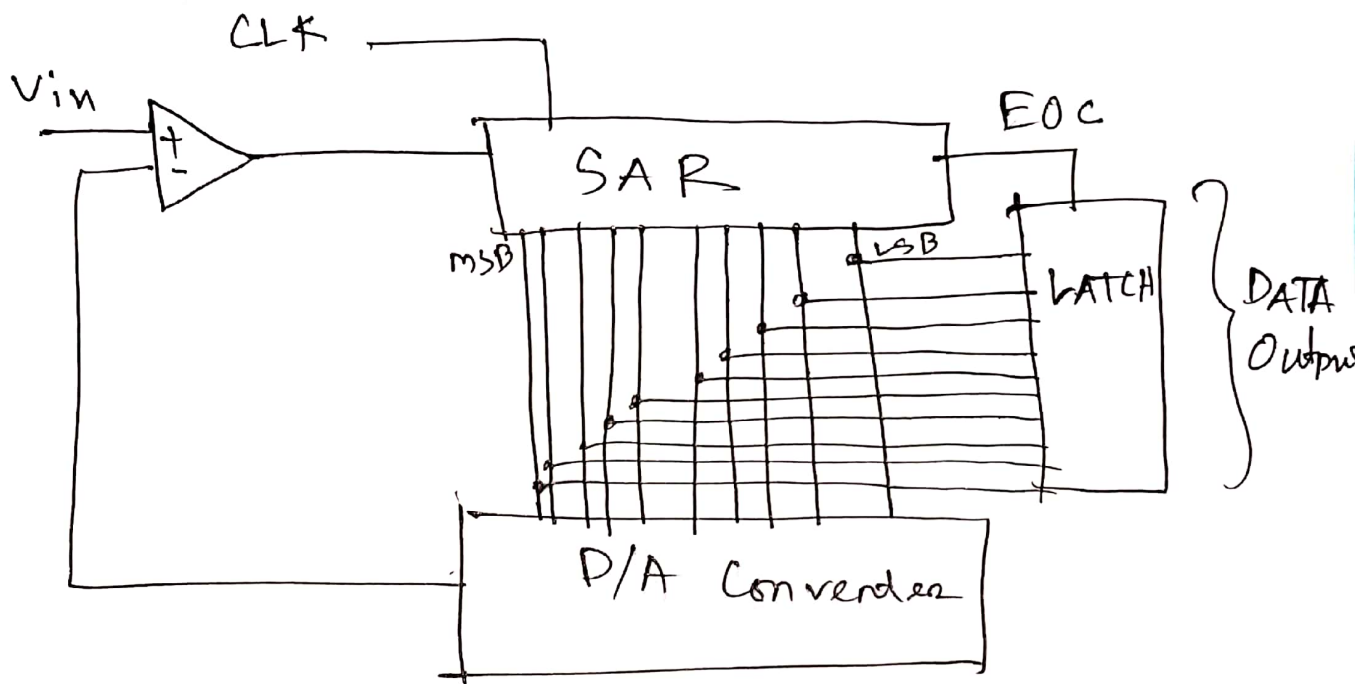


Fig: SAR A/D converter.

Successively change one bit from MSB to LSB and compares if it is large or small and keeps on changing that MSB and keep until the voltage and bin data is equal, and 740V gets: 1011100100

070707

Ans