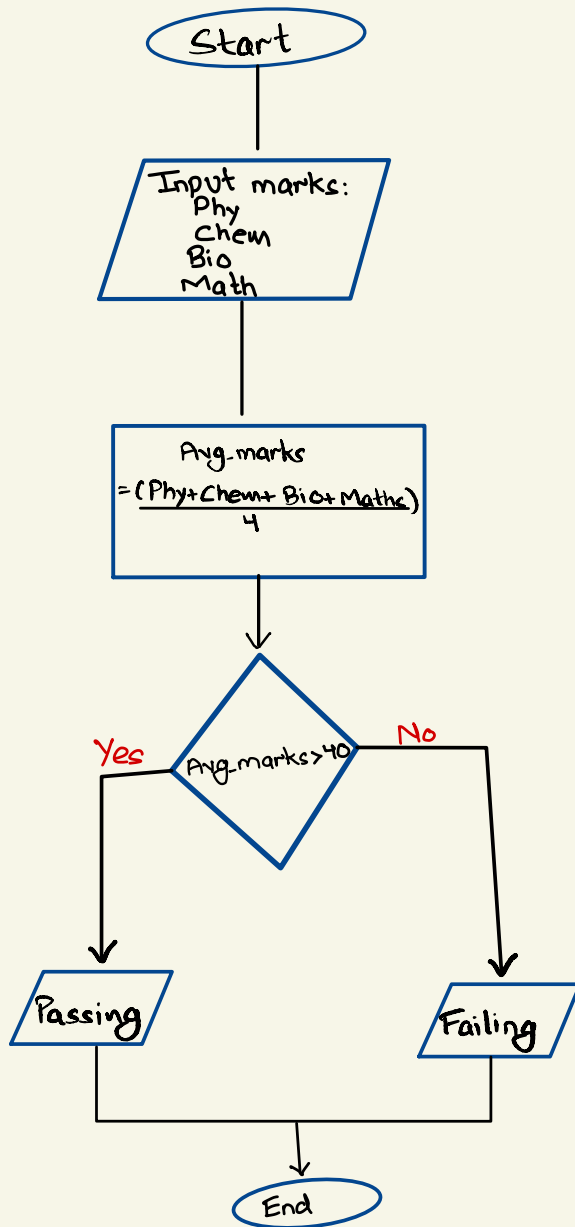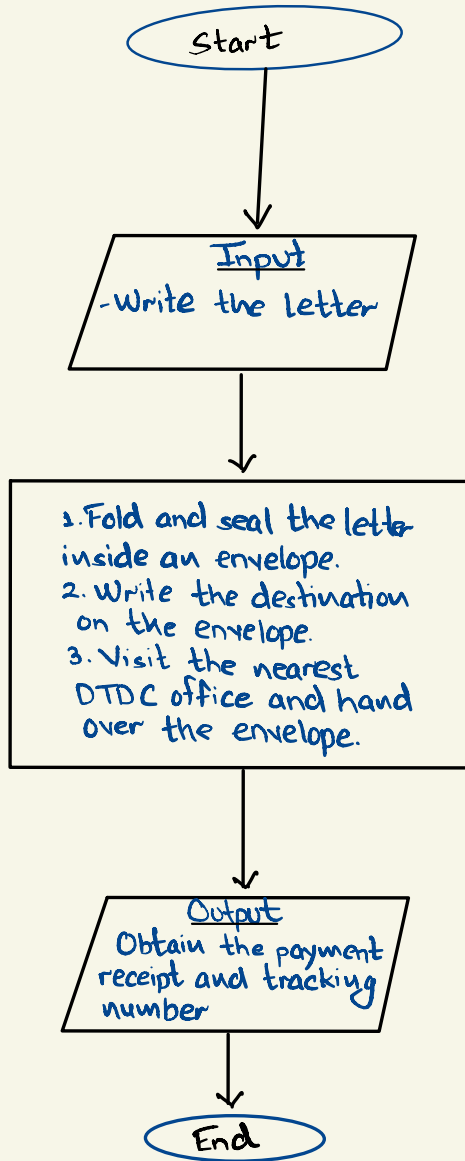1. Write an algorithm or flow chart to determine a student's final grade and indicate whether it is passing or failing. The final grade is calculated as average of 4 subjects - Physics, Chemistry, Biology and Mathematics. (Passing criteria = 40 marks)

```
        ┌──────────┐
        │  Start   │
        └──────────┘
             │
      ╱─────────────╲
     ╱ Input marks:  ╲
    │    Phy          │
    │    Chem         │
    │    Bio          │
     ╲   Math        ╱
      ╲─────────────╱
             │
     ┌────────────────────────┐
     │      Avg-marks         │
     │ = (Phy+Chem+Bio+Maths) │
     │            4           │
     └────────────────────────┘
             │
             ▼
          ╱──────╲
   Yes   ╱        ╲   No
  ◄─────│ Avg-marks>40 │─────►
         ╲        ╱
          ╲──────╱
    │                    │
    ▼                    ▼
 ╱────────╲          ╱────────╲
│ Passing  │        │ Failing  │
 ╲────────╱          ╲────────╱
    │                    │
    └──────────┬─────────┘
               ▼
          ┌─────────┐
          │   End   │
          └─────────┘
```

2. Write a algorithm or flow chart for posting a letter.

Start

Input
-Write the letter

1. Fold and seal the letter inside an envelope.
2. Write the destination on the envelope.
3. Visit the nearest DTDC office and hand over the envelope.

Output
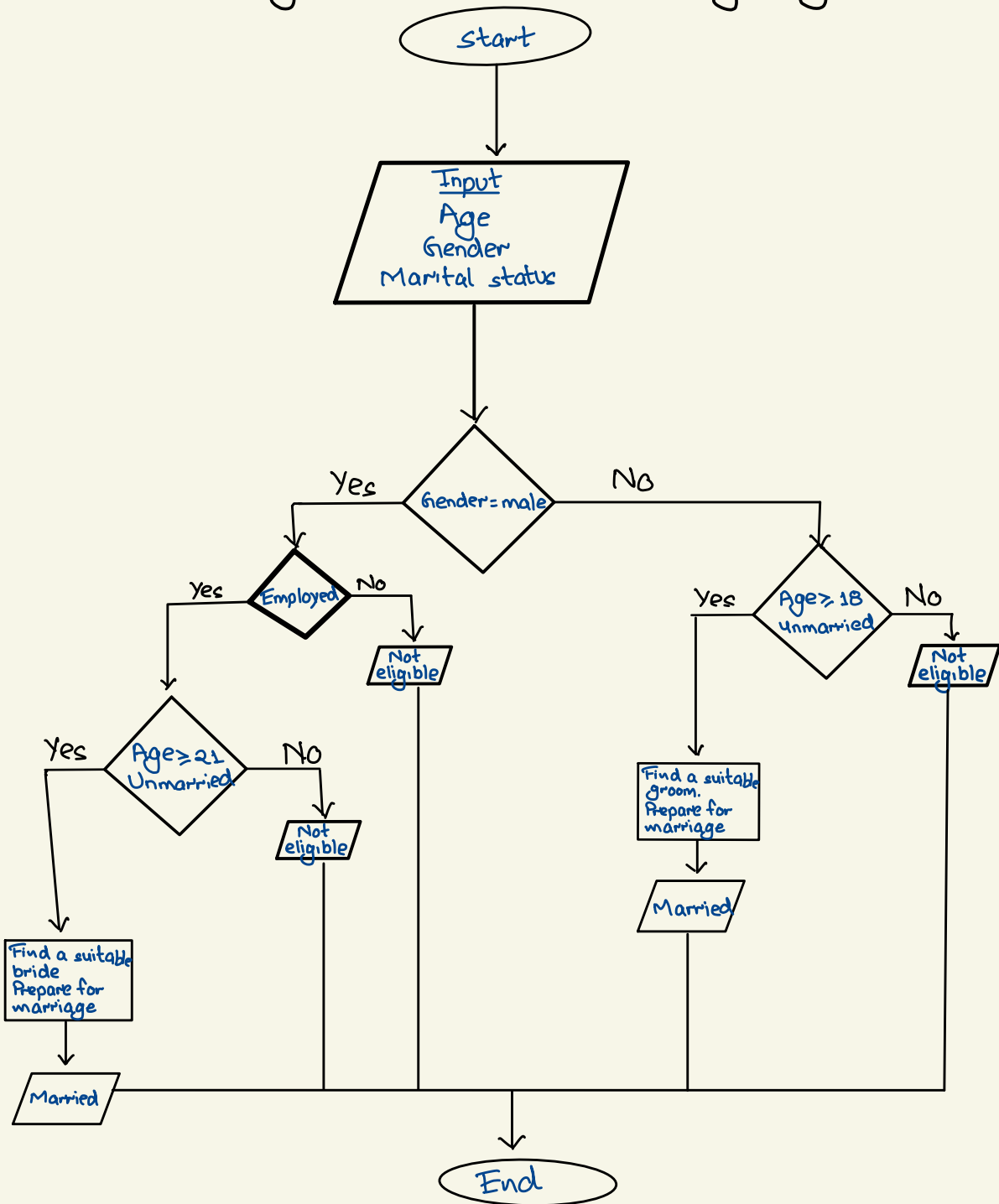Obtain the payment receipt and tracking number

End

3. Write an algorithm or flow chart to catch a school bus.

Algorithm

1. Wake up early.
2. Brush your teeth and take a bath.
3. Wear the school uniform and shoes.
4. Eat breakfast and pack your bag.
5. Leave home to reach the designated bus stop 5 minutes before the scheduled arrival time of the bus.
6. Board the bus as soon as it arrives.

4. Write an algorithm/flow chart for getting married.

```
                    ( Start )
                        |
                        v
              /  Input          \
             /   Age             \
             \   Gender          /
              \  Marital status /
                        |
                        v
        Yes <  Gender = male  > No
         |                      |
         v                      v
  Yes < Employed > No    Yes < Age ≥ 18    > No
   |              |       |    Unmarried     |
   v              v       v                  v
 Yes < Age ≥ 21 > No  [Not     [Find a        [Not
  |    Unmarried   |   eligible] suitable      eligible]
  v              v               groom.
[Find a        [Not             Prepare for
 suitable       eligible]       marriage]
 bride                             |
 Prepare for                       v
 marriage]                      /Married/
    |
    v
 /Married/ ──────────────────────┐
                                 v
                              ( End )
```

5. Write class, data members and member functions for a soccer player.

Class $\longrightarrow$ Player

Data members $\longrightarrow$ name
jersey_number
age
weight
soccer_iq

Member function $\longrightarrow$ playerRecord()
ranking()
goal_score()