Total No. of Pages:2

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FOURTH SEMESTER

B.Tech. (FT)

MID SEMESTER EXAMINATION   *March-2019*

SE202 SOFTWARE ENGINEERING

Time: 01:30 Hours   *Max. Marks: 30*

Note:	All questions are compulsory.
	Assume suitable missing data, if any.

1[a] Differentiate between verification and validation with examples?   (3)
[b] List out requirement elicitation techniques. Which one is most popular and why?   (4)
[c] What is the practical application of function point method?   (2)
[d] What is cohesion? Explain best and worst type of cohesion.   (4)
[e] Why is the sum of μ_p and τ_p in COCOMO model not equal to 1?   (2)

2 Describe iterative enhancement model. Discuss each phase in detail.   (3)

3 The aim is to develop a Delhi Metro Automation System (DMAS). The DMAS has the following functions:

- Token and smart card: to use the metro train, every passenger is required to have a valid token or a smart card.
  - The duration of a token or a smart card is 10 minutes from the time of entry, if an exit is performed after 120 minutes a fine of Rs.50 is imposed.
  - A token can be used to exit from stations where the fare exactly matches the amount in the token, a smart card does not have this restriction.
  - Smart card carries a discount of 10% on all transactions.
  - To refill a smart card: maximum limit: Rs.800, minimum limit : Rs.50, and denomination have to be in multiples of Rs. 50.
  - To enter a station, the minimum balance on the smart card should be rupees.
  - If the fare exceeds the balance present in the card, the balance can go negative upon exit.
- Metro train: Every metro train runs between source and destination.

P.T.O.

- o For each station there is a button, Station alert is shown by illumination of buttons. All buttons are illuminated when the metro train begins from the source station. The button illuminates with blinking light on the next coming station. The blinking illumination is cancelled when the metro visits the desired station and then the button for next station blinks.
- o Closing of doors is mandatory for any movement of train.
- o Door opening time is 30 seconds in ideal conditions. In case of any obstruction the system will attempt to clear the door 3 times, if obstruction persists, all the doors will be open on all coaches and again they are tried to close.
- Reporting: The following reports are maintained during metro operation:
  - o Entry, exit times along with stations for all tokens.
  - o Fine collected along with reasons.
  - o Daily collection of money.
  - o Number of customers that travel per day

Schedule of all trains are maintained.

Draw the following using standard notations. If necessary, you can make suitable assumptions regarding the details of various features of DMAS, but you must clearly write down the assumptions you make.

1. Draw context level diagram. (2)
2. Draw level-1 DFD for the DMAS. (5)
3. Draw level-2 DFD for purchase smart card process. (5)

END