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18DCS007 BT - UT 2
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1. HYPERLEDGER FABRIC - It is a modular frame work that acts as a foundation for developing blockchain based products, solutions & applications using plug & play components that are aimed for use within private enterprise

Hyperledger fabric is private & require permission to access, business cant regenerate info, plus transaction can be speed up as number of nodes on the network is reduced.

Traditional blockchain networks can't support private transaction & confidential contracts that are of atmost importance. Hyperledger fabric was designed in response to this as a modular, scalable & secure foundation for offering industrial blockchain.

Modular architecture of hyperledger fabric separates transactions processing into 3 stages:

1. SMART CONTRACTS
2. TRANSACTION ORDERING
3. TRANSACTION VALIDATION & COMMITMENT

Different roles in the network can have:

1. ENDOSER
2. COMITTER
3. CONSENTER

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PROPERTIES	BITCOIN	ETHEREUM	HYPERLEDGER
(I) PERMISSION	permissionless	permissionless	permissioned
(II) PUBLIC ACCESS TO DATA	public	public / private	private
(III) CONSENSUS	POW	POW	PBFT
(IV) NATIVE CURRENCY	bitcoin	ether	- NIO -
(V) CENTRALIZED	low, decent decision making	Medium	low, Linus based model
(VI) ANONYMITY	psuedonimity	psuedonimity	psuedonimity
(VII) SCALABILITY	high node scalability but low performance	high node scalability but low performance	high node scalability but high performance

2. PRACTICAL BYZANTINE FAULT TOLERACE ALGORITHM :

→ BFT is ability of a distributed computer network to correctly reach a sufficient consensus despite Mallicious nodes in system failing or sending out incorrect info.

→ The goal of BFT is to protect against catastrophic system failure by reducing the influence of malicious nodes.

→ PBFT is an application that optimizes aspects of PBFT & has been implemented in several modern distributed computer systems, including blockchain platforms.

→ PBFT consensus rounds are called views & broken in 4 phases:

1. Client sends a request to the leader node to invoke a service operations
2. The leading node broadcasts the request to the backup node.
3. The node execute the request, then send a reply to the client
4. The client awaits replies from different nodes with the same result, where f represents the maximum number of potentially fault nodes.

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→ A blockchain project called hyperledges uses PBFT algorithm as one of its primary consensus mechanisms

→ Hyperledger is private blockchain which doesn't prioritize being permissionless on a scalable to a large quantity of nodes which makes using PBFT.

→ Another project. Io Tex uses ~~ordered~~ advanced versions of PBFT. It's algorithm aims to achieve scalability by reducing amount of computational overhead.

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MCQ

1. (D) ALL
2. (B) 2X+2
3. (A) POW
4. (A)
5. (D)
6. (C) BOTH
7. (D)
8. (A)
9. (A) PUBLIC KEY
10. (C) BOOT NODE
11. (D) ALL
12. (C)
13. (A) TRUE
14. (C)
15. (D) NONE
16. (C) TRASACTION FEE
17. (A) TRUE
18. (C)
19. (A) (C)
20. (A) S1 ONLY