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B.Tech DEGREE EXAMINATION, MAY 2024

Seventh Semester

18ECE320T - SOFTWARE DEFINED NETWORKS

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:

i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours **Max. Marks: 100**

PART - A (20 × 1 = 20 Marks)

Answer **all** Questions

		Marks	BL	CO
1.	Pick the phrase that best describes Software Defined Networking (SDN) (A) SDN is an architecture that separates the network control and forwarding functions. (B) SDN is a protocol that enables communications between network devices. (C) SDN is an application that can be used to manage networks. (D) SDN is a network device of advanced features.	1	1	1
2.	What are the 3 layers that make up SDN? (A) 1) The network layer, 2) The physical layer, and 3) The transport layer (B) 1) The application layer, 2) The control layer, and 3) The physical layer (C) 1) The application layer, 2) The transport layer, and 3) The network layer (D) 1) The transport layer, 2) The network layer, and 3) The data link layer	1	2	1
3.	What is an open networking? (A) Networking software that vendors make available to the public to develop (B) A program to promote networking among developers. (C) An initiative to create more interoperability, automation and flexibility in networking products. (D) Same as Software defined networking	1	2	1
4.	Which Component of SDN framework, the Open Flow is used? (A) SDN Controller (B) South bound interface (C) NOS (D) North bound interface	1	1	1
5.	VXLAN is _____. (A) A switching protocol (B) A Data compression protocol (C) used to create overlay networks (D) An encryption standard	1	1	2
6.	_____ is a popular SDN controller from Big switch Networks (A) POX (B) Trema (C) Floodlight (D) Ryu	1	1	2
7.	A flow table resides on _____. (A) network device with flow entry alone (B) network device with flow entry and action (C) network device with action alone (D) Controller with flow entry and action	1	1	2

8.	Openflow Protocol defines communication between (A) Controller and Switch (B) Controller and Application (C) Switch and Application (D) Switches	1	1	2
9.	_____ is an open standard communication protocol for message oriented middleware based on XML. (A) XMPP (B) DMI (C) BGP (D) IBGP	1	2	3
10.	In Juniper networks, the service chaining is referred as_____. (A) vPath (B) Tunneling (C) The service Engineered path (D) The sequential path	1	2	3
11.	The abbreviation "COTS" stands for (A) custom option to service (B) commodity-oriented technical solution (C) commercially offered technical solution (D) commercial off the shelf	1	1	3
12.	_____ provides discovery, registration, and delivery services for virtual disk images (A) Nova (B) Glance (C) Swift (D) Cinder	1	2	3
13.	VXLAN segments are identified by a_____ -bit segment ID (A) 24 (B) 12 (C) 32 (D) 8	1	1	4
14.	How may VLANs are supported by IEEE 802.1Q tag for VLAN? (A) 1024 (B) 2048 (C) 4096 (D) 8000	1	3	4
15.	The TCP port for Stateless Tunneling Transport is _____ (A) 4796 (B) 7471 (C) 8080 (D) 404	1	1	4
16.	_____ has become the current dominant method of making API calls across SDN networks. (A) CLI (B) SNMP (C) P2P (D) REST (Representational State Transfer)	1	2	4
17.	_____ is to take the source code from an open source software program and develop an entirely new program (A) FSF (B) Forking (C) Plaguing (D) Creating	1	2	5
18.	The Linux operating system is distributed under the _____ license. (A) GNU (B) Apache (C) GPL (D) BSD	1	1	5
19.	_____is an open flow switch implementation (A) Beacon (B) Pantou (C) Indigo (D) NOX	1	1	5
20.	Which among the following SDN applications is a mangement application for Floodlight? (A) Avior (B) Quagga (C) Frenetic (D) OSCARS	1	2	5

PART - B (5 × 4 = 20 Marks) **Marks BL CO**

Answer **any 5** Questions

21.	Why SDN is preferred over traditional networks?	4	2	1
22.	Differentiate between underlay and overlay networks?	4	3	1
23.	Differentiate between Proactive and Reactive flows.	4	3	2
24.	Illustrate how service engineered path is configured by the SDN controller?	4	3	3
25.	Compare the alternatives of SDN in addressing the Multi tenancy needs of a data center	4	4	4
26.	List the benefits of network orchestration.	4	3	3
27.	Explain the use of SDN technology in Roaming in Mobile Networks.	4	4	5

PART - C (5 × 12 = 60 Marks) **Marks BL CO**

Answer **all** Questions

28.	(a) (i) Explain the functionalities of control plane and data plane (ii) Discuss about OpenFlow wire protocol for establishing control session in SDN.	12	4	1
	(OR)			
	(b) (i) Draw and explain the SDN framework. (ii) How network orchestration provides connectivity in SDN?			
29.	(a) (i) How SDN Software switch is different from SDN hardware switch? (ii) With a neat block diagram of the core/user module relationships, explain the features of Trema SDN controller	12	4	2
	(OR)			
	(b) (i) Draw a neat block diagram and explain Nicira Controller with Open vSwitch. (ii) Differentiate between NOX and POX			
30.	(a) Explain about publish and subscribe interface model for message exchanging. Mention its features and benefits.	12	3	3
	(OR)			
	(b) (i) Define flow and flow table in SDN. (ii)Draw a neat block diagram and explain the packet matching and forwarding process in SDN switch.			
31.	(a) Explain and Compare the three main tunneling technologies encapsulation formats that have been proposed for network virtualization: VXLAN, NVGRE, and STT.	12	4	4
	(OR)			
	(b) How SDN is related to wide area networks?			
32.	(a) Explain the following potential novel applications of open SDN (i) Elastic Tree (ii) Security Applications,	12	3	5
	(OR)			
	(b) Discuss the Open source licensing issues in detail.			

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