Internet and Web

Standard difficulty · 20 questions · 40 marks · Time: 37 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. A computer network is:
   (a) a printer cable
   (b) a type of virus
   (c) a single computer with many programs
   (d) a group of devices connected to share data and resources

2. Which type of network is the computers of one school lab joined to a printer?
   (a) WAN **(b)** MAN **(c)** LAN **(d)** PAN

3. Which network device connects a LAN to the Internet and forwards packets between networks?
   (a) gateway **(b)** hub **(c)** modem **(d)** router

4. In which topology: it needs the most cables, but data can take another path if a link fails?
   (a) mesh **(b)** bus **(c)** tree **(d)** star

5. How many cables are needed to connect 15 computers in a mesh topology (each pair joined directly)?
   (a) 210 **(b)** 105 **(c)** 15 **(d)** 14

6. Which Internet application is used for looking up a train timetable on a railway's website?
   (a) VoIP **(b)** World Wide Web **(c)** chat **(d)** e-mail

7. In the URL http://www.example.net/results/events/timetable.html, what is the domain name?
   (a) www.example.net **(b)** net
   (c) www.example.net/results **(d)** http

8. What is software used to find, open and display web pages called?
   (a) plug-in **(b)** web browser **(c)** web server **(d)** cookie

Section B — Short answer — 8 × 2 = 16 marks

9. Differentiate between a LAN and a WAN.

10. Name the type of network (PAN, LAN, MAN or WAN): (a) offices of a company in different countries joined together (b) the computers of one school lab joined to a printer

11. Name the device that: (a) sends every incoming signal to all its ports (b) converts digital signals to analog for a telephone line and back

12. Name the topology: (a) star networks are joined in levels, like branches from a root (b) if the central device fails, the whole network stops

13. A mesh network joins every pair of 27 computers with its own cable. How many cables does it need?

14. 25 computers are connected in a star topology to one switch. (a) How many cables are needed? (b) If one of these cables breaks, how many computers lose their connection?

15. For the URL http://shop.example.com/class12/notes/timetable.html, write (a) the protocol (b) the domain name (c) the top-level domain.

16. Name the Internet application (e-mail, chat, VoIP or World Wide Web): (a) talking to a relative abroad using an app that carries voice over the Internet (b) opening linked web pages in a browser

Section C — Word problems — 4 × 4 = 16 marks

17. Explain PAN, LAN, MAN and WAN with an example of each.

18. A school is setting up a network in four blocks.

Block | Computers
Admin | 53
Science | 42
Library | 24
Sports | 43

Link | Distance (m)
Admin–Science | 80
Admin–Library | 125
Admin–Sports | 65
Science–Library | 105
Library–Sports | 145

(a) Which block should hold the server? (b) Which links need a repeater if a cable carries a signal well for only 100 m? (c) Which device should join the computers inside each block? (d) If every computer has its own cable to the switch of its block, how many such cables are needed in all?

19. An office has 26 computers. (a) How many cables does a mesh topology need? (b) How many does a star topology with one switch need? (c) How many more cables does the mesh need?

20. Explain each part of the URL http://shop.example.org/results/report.pdf: (a) http (b) shop.example.org (c) /results/ (d) report.pdf

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Answer key

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Q	Answer	Working
1	**(d) a group of devices connected to share data and resources**	—
2	**(c) LAN**	—
3	**(d) router**	—
4	**(a) mesh**	—
5	**(b) 105**	n(n − 1)/2 = 15 × 14 ÷ 2
6	**(b) World Wide Web**	—
7	**(a) www.example.net**	protocol://domain name/path/file
8	**(b) web browser**	—
9	**A LAN covers a small area such as a building, is privately owned and fast; a WAN covers a large area such as countries, often uses public or leased lines and is slower and costlier.**	—
10	**(a) WAN (b) LAN**	—
11	**(a) hub (b) modem**	—
12	**(a) tree (b) star**	—
13	**351**	27 × 26 ÷ 2
14	**(a) 25; (b) 1**	one cable from each computer to the switch; a broken cable cuts off only its own computer
15	**(a) http (b) shop.example.com (c) .com**	protocol://domain/path; the top-level domain is the last part of the domain name
16	**(a) VoIP (b) World Wide Web**	—
17	**PAN: a few metres around one person, e.g. a phone and earbuds. LAN: a building or campus, e.g. a school lab. MAN: a city, e.g. a cable TV network. WAN: countries or the world, e.g. the Internet.**	one mark each
18	**(a) Admin, which has the most computers (53); (b) Admin–Library, Science–Library, Library–Sports; (c) a switch; (d) 162**	(b) the links longer than 100 m; (d) 53 + 42 + 24 + 43
19	**(a) 325; (b) 26; (c) 299**	mesh: 26 × 25 ÷ 2; star: one per computer
20	**(a) the protocol used to fetch the page; (b) the domain name of the web server (org is the top-level domain); (c) the**	one mark per part

Q	Answer	Working
	path to the folder on the server; (d) the file (resource) asked for	

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