India — Location

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

Name: _____ Date: _____ Score: ____ / 40

Write full answers in 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. India's standard meridian is:
   (a) 75°30′ E **(b)** 90°30′ E **(c)** 69°30′ E **(d)** 82°30′ E

2. What is India's share of the world's land surface?
   (a) about 2.4 per cent **(b)** 82°30′ E
   (c) 5 hours 30 minutes **(d)** 12 nautical miles from the coast

3. What is meant by "nautical mile"?
   (a) a narrow passage of water joining two seas
   (b) the local time of the prime meridian, 0°
   (c) the longitude whose local time is used for a whole country
   (d) a sea mile of about 1.852 km

4. When it is 16:00 by Indian Standard Time (82°30′ E), what is the local (sun) time at a place on 68°30′ E? (4 minutes per degree)
   (a) 15:04 **(b)** 16:56 **(c)** 16:00 **(d)** 16:04

5. Two places in India are 8° of longitude apart. How many minutes apart are their local (sun) times?
   (a) 32 minutes **(b)** 120 minutes **(c)** 8 minutes **(d)** 36 minutes

6. It is 11:15 at Greenwich (GMT). What is the time in India (IST)?
   (a) 05:45 **(b)** 16:45 **(c)** 16:15 **(d)** 17:15

7. One nautical mile is about 1.852 km. About how many km is 48 nautical miles?
   (a) 89.9 km **(b)** 76.8 km **(c)** 88.9 km **(d)** 25.9 km

8. Standard meridians are chosen in multiples of 7°30′, and each degree of longitude is 4 minutes of time. How far ahead of GMT is a standard meridian at 75° E?
   (a) 4 h 30 min **(b)** 5 h 30 min **(c)** 5 h **(d)** 10 h

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

9. Why does India need a standard meridian?

10. Give India's (a) area (b) standard meridian

11. Explain each term: (a) strait (b) territorial waters

12. When it is 12:00 noon IST, what is the local (sun) time at (a) 83° E (b) 82° E? (IST is the time of 82°30′ E; 4 minutes per degree)

13. It is 02:45 IST in India. What is the time at Greenwich (GMT), and why is IST ahead of GMT?

14. Convert to km (1 nautical mile ≈ 1.852 km): (a) 20 nautical miles (b) 36 nautical miles. Which lies within India's territorial waters?

15. What is each? (a) the Palk Strait (b) the Gulf of Mannar

16. Place A is on 96° E and place B on 72° E. How many minutes apart are their local times, and where does the sun rise first?

Section C — Longer answers — 4 × 4 = 16 marks

17. Does India need more than one standard time? Give your view with reasons.

18. Match each with its meaning: (a) subcontinent (b) gulf (c) Greenwich Mean Time. Choose from: a big unit of land standing out distinctly from the rest of a continent; a large area of sea partly enclosed by land; the local time of the prime meridian, 0°.

19. Suppose the sun rises at 05:00 local time at two places on the same latitude, one on 94° E and one on 84°30′ E. (a) How many minutes apart are their local times? (b) Express each sunrise in IST (82°30′ E). (c) Why does all of India use one time?

20. A fishing boat is 21 nautical miles from India's coast. (a) How many km is that (1 nautical mile ≈ 1.852 km)? (b) Is it within India's territorial waters? (c) Give two advantages of India's long coastline.

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Answer key

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Q	Answer	Working
1	**(d) 82°30′ E**	—
2	**(a) about 2.4 per cent**	—
3	**(d) a sea mile of about 1.852 km**	—
4	**(a) 15:04**	14° × 4 = 56 min behind
5	**(a) 32 minutes**	8 × 4
6	**(b) 16:45**	11:15 + 5 h 30 min
7	**(c) 88.9 km**	48 × 1.852
8	**(c) 5 h**	75 × 4 = 300 min
9	**Local time changes with longitude by about two hours across the country; one standard time keeps all clocks the same.**	—
10	**(a) about 3.28 million sq km (b) 82°30′ E**	—
11	**(a) a narrow passage of water joining two seas (b) the belt of sea up to 12 nautical miles from the coast**	—
12	**(a) 12:02 (b) 11:58**	(longitude − 82.5) × 4 minutes from noon
13	**21:15; India lies east of Greenwich, and 82°30′ × 4 min = 5 h 30 min.**	02:45 − 5 h 30 min
14	**(a) 37.0 km (b) 66.7 km; neither (limit 12 nautical miles)**	20 × 1.852; 36 × 1.852
15	**(a) the narrow strait between India and Sri Lanka (b) the gulf between India and Sri Lanka**	—
16	**96 minutes; at place A, which is further east**	24° × 4
17	**Local time varies by nearly two hours across India; one time keeps the country together, though the east gets daylight much earlier, which some say favours a second zone.**	—
18	**(a) a big unit of land standing out distinctly from the rest of a continent (b) a large area of sea partly enclosed by land (c) the local time of the prime meridian, 0°**	—
19	**(a) 38 minutes (b) 94° E: 04:14 IST; 84°30′ E: 04:52 IST (c) One standard**	local time − (longitude − 82.5) × 4 min = IST

Q	Answer	Working
	time keeps all clocks, transport and offices in step across the country.	
20	**(a) 38.9 km (b) no; the limit is 12 nautical miles (c) sea routes for trade, ports and fishing (also a moderate coastal climate).**	21 × 1.852