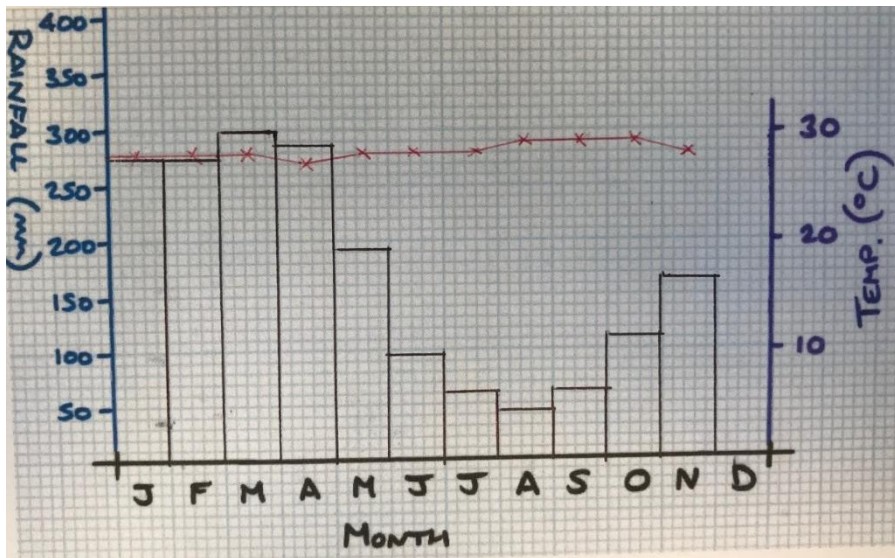**Using Figure 1 p2 and 3**

1. Using the map in Figure 1, describe the distribution of tropical rainforests (3 marks)

   Hint – where are rainforests? Use continents, lines of latitude, compass directions

   _____

   _____

   _____

   _____

   _____

   _____

2. How does the location of tropical rainforests affect the climate (2 marks)

   Hint – why is it hot and wet in rainforests?

   _____

   _____

   _____

   _____

3. **Complete the climate graph** below using the December data (2 marks)
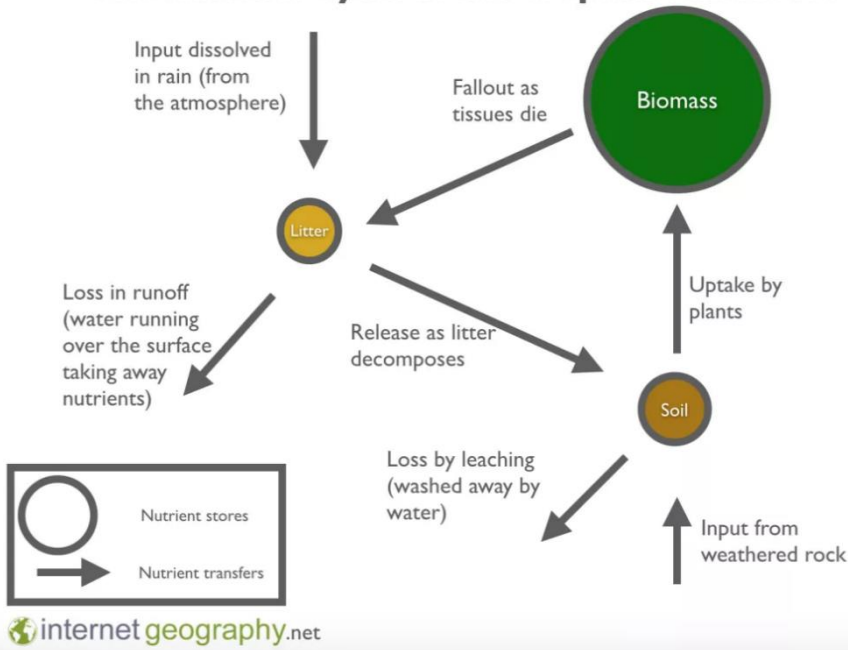

   4. Calculate
      a) the mean rainfall _____
      b) the **range** of rainfall using the data provided_____

   5. Describe the climate of Manaus in the Amazon rainforest.

      Trend temperature, using data_____

      _____

      _____

      Trend rainfall, using data (max/min, seasons, range_____

      _____

      _____

The nutrient cycle in the tropical rainforest

Input dissolved in rain (from the atmosphere)

Fallout as tissues die

Biomass

Litter

Loss in runoff (water running over the surface taking away nutrients)

Release as litter decomposes

Uptake by plants

Soil

Loss by leaching (washed away by water)

Input from weathered rock

Nutrient stores

Nutrient transfers

internet geography.net

Define these key words (p52)

Producer

Consumer
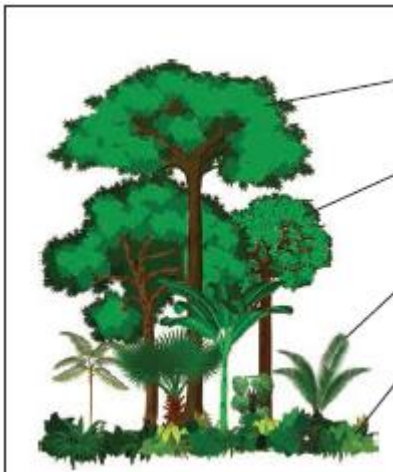
Decomposer

Food chain

Food Web

Nutrient cycling

6. Describe the role of soil in the rainforest nutrient cycle (3 marks)

_____

_____

Using the section of text at the bottom of page 2

7. What percentage of the world's biodiversity is in the tropical rainforest?_____

8. How many species of plants and animals are found there?_____

9. In the Amazon rainforest how many species of fish are there estimated to be? _____

10. In the Amazon rainforest how many species of bird are there estimated to be? _____

11. In the Amazon rainforest how many species of insects are there estimated to be? _____

12. Complete the missing information from Fig 1 p3.

_____ - A small number of _____ break through the general level of the forest, reaching heights of over _____ m

_____ - Continuous, _____ tree cover protects the ground from _____ rainfall and reduces the amount of _____ to areas below

_____ - Woody _____ and shrubs grow in the _____, calm conditions with _____ sunlight.

_____ - Made up of _____material broken down by the hot, _____ conditions. This level consists of scattered plants and _____, used by _____ as a source of food.

13. What are the characteristics of

a) rainforest soils

b) rainforest plants

c) rainforest animals

14. Sort the following into Social **(S)**, Economic **(Ec)** and Environmental **(Env)** benefits. (Don't forget social and economic are sometimes combined to become socio-economic!)
15. Then divide them into local **(L)** and global **(G)**effects

S/Ec/Env	L/G

The importance of tropical rainforests

Tropical rainforests are not only a resource, they are also important in many other ways and are a vital part of the global carbon balance. Tropical rainforests are valuable because:

- Over 50 million years of plant and animal species evolution has created a huge diversity of species. It is estimated that over 10 species are being lost every day due to rainforest destruction.
- They act as a global carbon sink and a climate regulator, and also help to reduce local risks of erosion and flooding.
- They provide a wide range of local foods and industrial products, including fibres, resins, dyes and rubber.
- They are home to over a thousand indigenous tribes who depend on the rainforest for their survival. These people have learned to live sustainably within the rainforest over hundreds of years.

16. Using the statistics at the bottom of p3, explain one way that rainforests are important (2 marks)

_____

_____

_____

_____

17. Which rainforest plants and animals might be useful in the following circumstances? (See example done for you)

Problem	Plant /animal	Which part is used?
Heart attack	*Bat*	*Saliva (spit)*
Leukaemia (cancer of the blood)		
Infection (of wounds, eg Gangrene)		
Parkinson's disease		
Thrombosis (Blood clots)		
Contraception (preventing pregnancy)		
Malaria		
HIV		
Glaucoma (an eye problem)		
Mental illness		
Anaesthetic (eg during tooth extraction)		

18. What do you think the implications might be if any of these drugs were no longer available?
Hint: think about birth/death rates, quality of life….

_____

_____

_____

_____

Using Figure 2 and the graphs at the top of the page

19. Which country had the lowest positive percentage change? _____

20. State the number of countries with a higher percentage change in annual deforestation than Guatemala

_____

21. What is the difference in the rate of change between Peru and Nicaragua? _____

22. Describe the trends in deforestation in both the Brazilian amazon and the non-Brazilian Amazon

_____

_____

_____

_____

_____

_____

23. List the 7 reasons why deforestation occurs from the bottom section(yellow) of p4

1. _____   2. _____   3._____

4. _____   5. _____   6._____

7. _____

24. State 5 **statistics** about deforestation from the bottom section of p4

_____

_____

_____

_____

_____

25. How does deforestation contribute to climate change?

_____

_____

_____

_____

_____

_____

26. How does deforestation lead to migration?

_____

_____

_____

_____

_____

27. What is the Paris climate summit?

28. Why is exploiting the forest a problem?

_____

_____

_____

29. How are they going to be able to meet this promise?

_____

_____

30. How much money have they been promised? And what is it for?

_____

_____

_____

Using p5

31. How much deforestation is a result of illegal activities? _____

32. List the environmental problems of deforestation

_____

_____

_____

33. Why are government backed schemes better?

_____

_____

_____

34. Complete the following table using the infographic in figure 2 page 5

Country	Total forest loss 2000-2012	Causes of deforestation	% exported	% deforestation due to commercial agriculture	% illegal agriculture
Brazil					
Malaysia					
Bolivia					
Indonesia					

Using Figure 3 – page 6

35. What is the HDI _____

36. What % live in poverty in Peru? _____

37. What is food insecurity? _____

_____

38. How much longer do people in Lima live _____

39. What are conditions like in remote, rural villages? _____

_____

_____

Using Figure 3 as a whole

40. List the benefits of road development in Peru

_____

_____

_____

_____

_____

41. How will roads impact on the environment?

_____

_____

_____

_____

_____

42. How many million hectares of rainforest will be at risk? _____

43. Which protected areas are at risk? _____

44. How much land is at risk from road building? _____

45. What do conservationists and local people believe? _____

_____

46. Where does most deforestation occur? _____

47. How many people depend on Peru's forests for survival? _____

48. Highlight the positives and negatives of road building from the section of figure 3 below

Road building, the engine of progress and enabler of destruction!

Peru is one of the most forested countries in the world; only Brazil has a larger share of the Amazon rainforest. This makes Peru one of the most biodiverse countries in the world, with nearly half a million people directly depending on the forest for their survival. The development of new roads will create opportunities for trade and open up areas for industrial development and tourism, but will also add to the growing rate of deforestation as land is cleared for cattle ranching, soya plantations and mining, destroying habitats that have existed for thousands of years. Only time will tell what effects road developments will have on the rainforest and whether the negative effects can be reduced.

Roads will help to drive rural areas of Peru out of poverty

Road developments will encourage the growth of the mining industry which is seen as a major way to move people in Peru out of poverty, fulfilling a government pledge to cut poverty by 50% by 2021. Despite a decline in poverty since 2000, it was reported that in 2016 over 40% of all rural dwellers were living in extreme poverty and were unable to satisfy their basic needs. Road developments will connect rural areas and create opportunities in agriculture and mining, bringing employment to thousands of people while also increasing export earnings and giving the government the opportunity to invest in social improvements.

Road projects don't benefit indigenous people. Roads bring outsiders who exploit the land and log our timber, as well as drug traffickers and illegal miners.

The Federation of Native Amazon Peoples

We must break with the view that the Amazon is an inexhaustible larder for other countries without taking into account its inhabitants.

Pope Francis

49. Divide them into social/economic and environmental in the table below

Social	Economic	Environmental

50. What are Peru doing to move people out of poverty? _____

51. What was the government pledge? _____

52. How many rural dwellers were living in poverty in 2016 _____

53. Summarise the opinions of people below