



- (4) It is to step up investments in sports.
3. Which country to host the World Sustainable Development Summit – 2018 ?  
(1) South Africa (2) Nepal  
(3) Brazil (4) India
4. Which HRD Ministry-appointed committee is drafting new National Education Policy (NEP)?  
(1) Ram Shanker Kureel committee  
(2) K Kasturirangan committee  
(3) V G S Rathore committee  
(4) KJ Alphonse committee
5. With reference to Paris agreement on climate change, consider the following statements :
- I. It was signed by 195 nations in Dec 2015 at Paris  
II. The main aim is to keep a global temperature rise this century well below 3 degrees Celsius  
III. It further aims to drive efforts to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels
- Which of the above statements are correct ?  
(1) I and II (2) II and III  
(3) I, II and III (4) I and III
6. Which of the following statements are correct?
- a. Parliament cannot alter the name and territory of J&K without the consent of the State legislature  
b. The Union shall have the power to suspend the State Constitution on the ground of failure to comply with the directions given by the Union.  
c. No proclamation of Emergency can be made by the President under Article 352 on the ground of “internal disturbance” in J&K without the concurrence of J&K Government
- Which of the above statements are correct ?  
(1) (a) and (b) (2) (b) and (c)  
(3) (a) and (c) (4) (a), (b), (c)

7. **Assertion (A):** Global warming is the increase in Earth's near-surface air and ocean temperatures.

**Reason (R):** The greenhouse effect is when water and carbon dioxide absorb outgoing infrared radiation, increasing the planet's temperature

Choose the correct code:

- (1) Both (A) and (R) are correct      (2) Both (A) and (R) are incorrect,  
(3) (A) is true and (R) is true      (4) (A) is false and (R) is true

8. Which of these pairs are correctly matched ?

- a. The Vienna Convention : Protection of Ozone Layer  
b. Montreal Protocol : Substances that Deplete the Ozone Layer  
c. The Minamata Convention : Lead

- (1) a only  
(2) a and b only  
(3) c only

9. Representation of the People (Amendment and Validation) Bill, 2013, brought two key changes. These changes were :

- Even if a person is prohibited from voting due to being in police custody or in jail, he can file nomination for an election.
- Definition of "disqualified" in the Act has been amended. disqualification has to be due to conviction for certain specified offences and can be on no other ground.
- Anyone in prison or on the lawful custody of the police (other than preventive detention) is not entitled to vote.

Select the correct answer using the codes given below.

- (1) I and ii only      (2) I and iii only  
(3) ii and iii only      (4) I, ii, iii

10. Match List – I and List – II and identify the correct code:

- |                         |                   |
|-------------------------|-------------------|
| a. World Health Day     | i. 16th September |
| b. World Population Day | ii. 1st December  |
| c. World Ozone Day      | iii. 11th July    |
| d. World AIDS Day       | iv. 7th April     |

**Codes:**

	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>
(1)	i	ii	iii	iv
(2)	iv	iii	i	ii
(3)	ii	iii	iv	i
(4)	iii	iv	ii	i

**11. Assertion (A):** Water Borne diseases are largely caused by micro-organisms present in human or animal waste

**Reason (R):** Typhoid fever is a Water Borne diseases.

Choose the correct code:

- (1) Both (A) and (R) are correct
- (2) Both (A) and (R) are incorrect,
- (3) (A) is true and (R) is true
- (4) (A) is false and (R) is true

**12.** Which of the following statements regarding the meaning of research are correct

- a. Research refers to a series of systematic activity or activities undertaken to find out the solution of a problem
- b. It is a systematic, logical and an unbiased process wherein verification of hypothesis data analysis, interpretation and formation of principles can be done
- c. It is an intellectual enquiry or quest towards truth
- d. It leads to enhancement of knowledge

- (1) (a), (b) and (c)
- (2) (b), (c) and (d)
- (3) (a), (c) and (d)
- (4) (a), (b), (c) and (d)

**13.** Below are given two set – research methods (Set-I) and data collection tools (Set-II). Match the two sets and indicate your answer by selecting the correct code:

- |                             |                                   |
|-----------------------------|-----------------------------------|
| A Experimental method       | i Using primary secondary sources |
| B Ex post-facto method      | ii Questionnaire                  |
| C Descriptive survey method | iii Standardized tests            |
| D Historical method         | iv Typical characteristics tests  |

**Codes:**

A B C D

1. ii i iii iv
2. iii iv ii i
3. ii iii i iv
4. ii iv iii i

14. Consider the following statements :

- a. Teaching is the stimulation, guidance, direction and encouragement of learning
- b. Good teaching is as much about passion as it is about reason
- c. Good teaching is also about bridging the gap between theory and practice

Which of the above statements are correct ?

- (1) a and b
- (2) b and c
- (3) a and c
- (4) a, b and c

15. Consider the following statements about NITI Aayog :

- a. The National Institution for Transforming India, also called NITI Aayog, was formed via a resolution of the Union Cabinet on January 1, 2015
- b. NITI Aayog fosters Cooperative Federalism
- c. The President is its Chairman

Which of the statements given above is/are correct ?

- (1) a and b only
- (2) b and c only
- (3) a and c
- (4) a, b and c

16. Imagine you are working in an educational institution where people are of equal status. Which method of communication is best suited and normally employed in such a context?

- (1) Horizontal communication
- (2) Vertical communication
- (3) Corporate communication
- (4) Cross communication

17. An unsolicited e-mail message sent to many recipients at once is a

- (1) Worm
- (2) Virus
- (3) Threat
- (4) Spam

18. If the proposition 'All thieves are poor' is false, which of the following propositions can be claimed certainly to be true?

**Propositions :**

- (1) Some thieves are poor.
- (2) Some thieves are not poor.

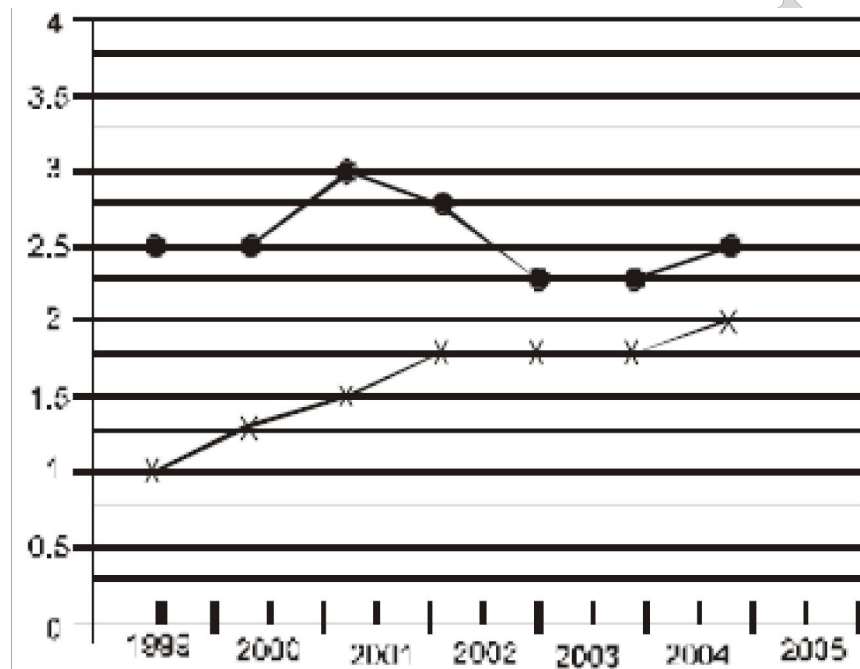
(3) No thief is poor. (4) No poor person is a thief.

19. It is communication of feelings, emotions, attitudes, and thoughts through body movements / gestures / eye contact, etc.” which type of communication is this?

(1) Oral communication (2) Written communication

(3) Non verbal communication (4) None

Questions 20-24 Study the following graph carefully to answer the given questions.  
PRODUCTION OF TWO COMPANIES A AND B ( IN CRORE UNITS) OVER THE GIVEN YEARS



20. For Company A, how much is the percent increase in production in 2000 from 1999?

(1) 0.25 (2) 2.5

(3) 25 (4) 12.5

21. How many units is the total production of Company A for the given years?

(1) 9 crores (2) 17.75 crores

(3) 12.25 crores (4) 11 crores

22. What is the difference in units produced by the two companies in 1999?

(1) 1,50,000,000 (2) 15,00,00,000

(3) 15,00,000 (4) 15,000

- 23.** How many units is the approximate average production of Company B for the given years?
- (1) 3 crores (2) 2.55 crores  
(3) 2.75 crores (4) 2.25 crores
- 24.** In which year did both the companies have no change in production from the previous year?
- (1) 2000 (2) 2002  
(3) 2003 (4) 2004
- 25.** Which of the following collection techniques were used as the primary research methods for this study?
- (1) Qualitative (2) Quantitative  
(3) Both (1) and (2) (4) None
- 26.** Which of the following problems was India faced with after Independence ?
- (1) Military attack from a country across the border.  
(2) Lack of coordination between the Central and State Governments.  
(3) Improper coordination of various Government policies  
(4) Increasing the production from a very low level
- 27.** Which of the following issues was not appropriately realized by the Central Government.
- (1) Ethnic diversity of the people  
(2) A national language for the country  
(3) Implementation of the formulated policies  
(4) Centre -State relations
- 28.** Why was central economic planning found to be difficult?
- (1) Multiplicity of States and Union Territories  
(2) Lack of coordination in different Government departments  
(3) Autonomy given to the States in certain matters  
(4) Lack of will in implementing land reforms
- 29.** Why was the linguistic reorganization of the State accepted?
- (1) The States were not cooperating with the Central Government  
(2) Non- Congress Governments in the States demanded such a reorganization of

the States

(3) No common national language emerged

(4) Strong pressure from the States was exerted on the Central Government to create such States

30. Which, according to the passage, can be cited as an exercise in democratic practice in India before Independence?

(1) The handing over of power by the British to India

(2) The Indianisation of the Indian Civil Service

(3) A neutral role played by the Army

(4) None of the above

31. The information to be collected in survey method are related to

(1) Present Position

(2) Aims of the research

(3) The attainment of aim of research

(4) All of the above

32. One of the essential characteristics of research is

(1) Sensitivity

(2) Generalizability

(3) Usability

(4) Replicability

33. Identify the main Principle on which the Parliamentary System operates.

(1) Responsibility of Executive to Legislature

(2) Supremacy of Parliament

(3) Supremacy of Judiciary

(4) Theory of Separation of power

34. Match list I with list II and select the correct from the code given below :

**List I ( Institutions)**

1. Indian Veterinary Research Institute

2. Institute of Armament Technology

3. Indian Institute of Science

4. National Institute for Educational Pannesi and Administrators

**List II (Locations)**

i. Pune

ii. Izat Nagar

iii. Delhi

vi. Bangalore

(1) 1-ii, 2-i, 3-iv, 4-iii

(2) 1-ii, 2-iv, 3-ii, 4-iii

(3) 1-ii, 2-iii, 3- I, 4- iv

(4) 1-iv, 2-iii, 3-ii, 4-i

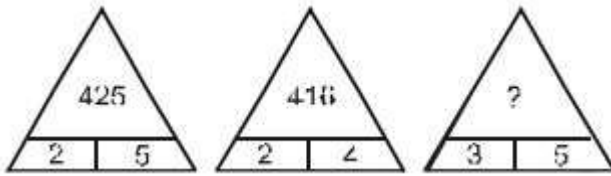


35. The prime minister of India is appointed from \_\_\_\_\_
- (1) The leading Party in Lok Sabha
  - (2) The Leading Party in Rajya Sabha
  - (3) The leading party in Lok Sabha and Rajya Sabha combined
  - (4) None of the above
36. The study of interrelations between Organism and their environment is called \_\_\_\_\_
- (1) Biosphere
  - (2) Ecology
  - (3) Synecology
  - (4) Autecology
37. The term ICT is now also used to refer to the convergence of \_\_\_\_\_
- (1) Audio visual
  - (2) Telephone network
  - (3) Both (1) and (2)
  - (4) None
38. Fossil Fuels include \_\_\_\_\_
- (1) Oil
  - (2) Natural Gas
  - (3) Coal
  - (4) All of the above
39. Noise in excess of \_\_\_\_\_ is called noise pollution
- (1) 40-65 db
  - (2) 60-70 db
  - (3) 80-100 db
  - (4) None of the above
40. Effectiveness of teaching depends on \_\_\_\_\_
- (1) Handwriting of Teacher
  - (2) Speaking ability of Teacher
  - (3) Qualification of the Teacher
  - (4) Subject Understanding of the Teacher
41. The participation of students will be maximum if \_\_\_\_\_ method is used for teaching.
- (1) Text Books
  - (2) Discussion Method
  - (3) Conference Method
  - (4) Lectures
42. In following questions, number series is given. One of the numbers in each series is wrong. After searching wrong number find the correct number in its place.
- 510, 254, 126, 64, 30, 14, 6
- (1) 252
  - (2) 62
  - (3) 130
  - (4) 9
43. Which reasoning determines whether the truth of a conclusion can be determined for that rule, based solely on the truth of the premises?
- (1) Deductive
  - (2) Inductive

(3) Abductive

(4) All

44. Insert the missing number or letter from among the given alternatives.



(1) 140

(2) 280

(3) 875

(4) 925

45. In the following question assuming the given statements to be true, find out which of the two assumptions I and II given below them is/are definitely true give answer as.

(1) Only assumption I is implicit

(2) Only assumption II is implicit

(3) Either I or II is implicit

(4) Neither I nor II is implicit

(E) Both I and II are implicit

Statement: The State government has decided to appoint four thousand primary school teachers during the next financial year.

Assumptions:

I. There are enough schools in the state to accommodate four thousand additional primary school teachers.

II. The eligible candidates may not be interested to apply as the government may not finally appoint such a large number of primary school teachers.

46. What is the latest write-once optical storage media?

(1) Digital paper

(2) Magneto-optical disk

(3) WORM disk

(4) CD- ROM disk

47. Which of the following identifies a specific web page and its computer on the Web?

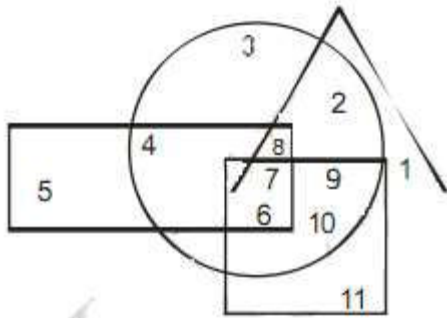
(1) Web site

(2) Web site address

(3) URL

(4) Domain Name

Direction (48-49) In the following figure, rectangle, square, circle and triangle represents the regions of wheat gram, maize and rice cultivation respectively. On the basis of the figure, answer the following questions.



48. Which of the area is cultivated for wheat and maize only?
- (1) 8 (2) 6  
(3) 5 (4) 4
49. Which of the area is cultivated for maize only?
- (1) 10 (2) 2  
(3) 3 (4) 4
50. Pointing to a photograph. Bajpai said, " He is the son of the only daughter of the father of my brother." How Bajpai is related to the man in the photograph?
- (1) Nephew (2) Brother  
(3) Father (4) Maternal Uncle

## PAPER-II

1. Consider the following statements :
- i. The rural decadal growth rate of population is more than that of urban areas.
  - ii. The contribution of rural and urban areas to the total increase in population is nearly equal.
- Which of the statements given above is/are correct ?
- (1) I only                                      (2) ii only  
(3) Both I and ii                              (4) Neither I nor ii
2. Consider the following states:
- i. Bihar
  - ii. West Bengal
  - iii. Delhi
- Which of the statements given above is/are correct ?
- (1) I only  
(2) ii only  
(3) Both I and ii  
(4) Neither I nor ii
3. Consider the following statements :
- i. This is the first time since independence that the decadal growth rate of population has declined.
  - ii. Workers (in census 2011) are those who have worked for atleast one day during the reference year.
- Which of the statements given above is/are correct ?
- (1) I only              (2) ii only              (3) Both I and ii              (4) Neither I nor ii
4. The land frontier of India is about 15200 KM. Which of the following countries shares the largest border length with India:
- (1) Bangladesh                              (2) Pakistan  
(3) china                                      (4) Nepal
5. The products from forests are classified as major and minor. Which of the following is/are MAJOR forest produce?

- i. Wood
- ii. Bamboo
- iii. Tendu Leaves

Select the correct answer using the codes given below.

- (1) I only
- (2) I and ii only
- (3) iii only
- (4) None

6. Cherrapunji and Mawsynram records very high annual rainfall. This is because
- (1) they receive rainfall from both Bay of Bengal branch and Arabian sea branch
  - (2) the monsoon winds are trapped withing a funnel shaped valley in this region
  - (3) they receive both cyclonic and monsoon rainfall
  - (4) None of the above

7. Match List I with List II and select the correct answer using the code given below

List I (Planation Surface)

List II (Propounder)

- A. Panplane
- B. Pediplane
- C. Peniplain
- D. Primarumpf

- 1. Davis
- 2. Crickmay
- 3. King
- 4. Penck

Code:

- (A) A-2, B-3, C-4, D-1
- (2) A-2, B-3, C-1, D-4
- (3) A-3, B-4, C-1, D-2
- (4) A-3, B-1, C-4, D-2

8. Match List I with List II and select the correct answer using the code given below :

List I (Volcanic Eruption)

List II (Characteristics)

- A. Effusive eruption
- B. Explosive volcano
- C. Glowing cloud
- D. Composite cone

- 1. Mount Pinatubo
- 2. Martinique (Caribbean Islands)
- 3. Mt .Orizba (Mexico)
- 4. Kilauea – (Hawaii)

Code:

- (1) A-4, B-1, C-2, D-3
- (2) A-4, B-1, C-3, D-2
- (3) A-3, B-4, C-1, D-2
- (4) A-3, B-4, C-2, D-1

9. Match List I with List II and select the correct answer using the code given below:

List I (Classification of Valleys)

List II (Characteristics of Valleys)

A. Consequent Valley

1. Draining in a direction opposite to that of the original Consequence valleys.

B. Subsequence Valley

2. Showing no apparent adjustment to structural control.

C. Insequent Valley

3. Course shifted from the original consequent ones to more readily erosible rocks.

D. Obsequent Valley

4. Course determined by the initial slope of the land.

Code:

(1) A-4, B-3, C-2, D-1

(2) A-4, B-3, C-1, D-2

(3) A-2, B-1, C-4, D-3

(4) A-2, B-4, C-1, D-3

10. Examine the following statements and select the correct answer using the code given below:

1. The cementation, compaction, and hardening of sedimentary rocks is known as lithification.

2. Most of the sedimentary rocks are derived from existing rocks or from organic materials.

3. Evaporites are inorganic in character.

Code:

(1) 1 and 2 are correct

(2) 1 and 3 are correct

(3) 2 and 3 are correct

(4) 1, 2 and 3 are correct

11. Consider the following statements:

1. Canyon is an extreme type of V-shaped valley with very steep sides and no valley floor.

2. Grand Canyon is associated with the Colorado river.

3. The Hoover Dam has been constructed across the Colorado river.

Which of the statement(s) given above are correct?

Code:

(1) 1 and 2 are correct

(2) 2 and 3 are correct

(3) 1 and 3 are correct

(4) 1, 2 and 3 are correct

- 12.** The 'Aurora Borealis' occurs in the:
- (1) Exosphere (2) Ionosphere  
 (3) Ozonosphere (4) Stratosphere
- 13.** Match List I with List II and select the correct answer using the code given below
- | List I (Name)                      | List II (Location)    |
|------------------------------------|-----------------------|
| A. Subpolar low pressure cells     | 1. 20° to 35° N and S |
| B. Subtropical high pressure cells | 2. 90° N, 90°S        |
| C. Equatorial low pressure cells   | 3. 60° N, 60° S       |
| D. Polar high pressure cells       | 4. 10°N to 10° S      |
- Code:
- (1) A-2, B-3, C-4, D-1 (2) A-3, B-1, C-4, D-2  
 (4) A-3, B-1, C-2, D-4 (4) A-2, B-3, C-1, D-4
- 14.** Match List I with List II and select the correct answer using the code given below:
- | List I (Tropical)       | List II (Characteristic Feature) |
|-------------------------|----------------------------------|
| A. Hurricanes/typhoons  | 1. Closed isobars                |
| B. Tropical storms      | 2. Circular isobars              |
| C. Tropical depressions | 3. Low winds, Patches of clouds  |
| D. Tropical disturbance | 4. Gale force, light rainfall    |
- Code:
- (1) A-2, B-1, C-4, D-3 (2) A-2, B-1, C-3, D-4  
 (3) A-4, B-3, C-2, D-1 (4) A-4, B-2, C-3, D-1
- 15.** 'Hails' generally form in:
- (1) Cumulus clouds (2) Cumulonimbus clouds  
 (3) Stratus clouds (4) Cirrostratus clouds
- 16.** The typical area of sal forest in the Indian peninsular upland occurs
- (1) On the Western Ghats  
 (2) Between the Tapti and the Narmada  
 (3) To the north-east of the Godavari  
 (4) On the Malwa plateau

17. Match List I with List II and select the correct answer using the code given below:

List I (Ocean Trench)

A. Aldrich/Tonga

B. Challenger

C. Narer/Puerto Rico

D. Romanche

List II (Ocean)

1. North Pacific

2. South Pacific

3. South Atlantic

4. North Atlantic

Code:

(1) A-2, B-1, C-3, D-4

(2) A-2, B-1, C-4, D-3

(3) A-1, B-3, C-2, D-4

(4) A-4, B-2, C-3, D-1

18. The accumulation of water in the western part of the Atlantic Ocean by the Equatorial current is compensated by:

(1) High rate of evaporation

(2) Counter Equatorial Current

(3) Sinking of the surface current

(4) Upwelling of water in the eastern part

19. Corals are susceptible to:

1. Coral beaching

2. Exposure to fresh water

3. Osmotic shock

4. Turbidity water

Code:

(1) 1, 2 and 3 are correct

(2) 1, 3 and 4 are correct

(3) 2, 3 and 4 are correct

(4) 1, 2, 3 and 4 are correct

20. Which one of the following is not correctly matched?

(1) Aridisols - Desert soils

(2) Alfisols - Humid temperate soils

(3) Mollisols - Taiga soils

(4) Oxisols - Tropical soils

21. Examine the following statements and select the correct answer using the code given below:

1. A large, stable terrestrial ecosystem characterized by specific plants and animals is known as a biome

2. A boundary transition zone between adjoining ecosystems is known as an ecotone.

3. Small plants without woody stems above the ground are known as herbs.

4. Smaller woody plants, branching stems at the ground are known as shrubs.

Code:



(1) 1, 2 and 3 are correct

(2) 1, 2 and 3 are correct

(3) 1, 3 and 4 are correct

(4) 1, 2, 3 and 4 are correct

Instruction for Q.22 to 29

The following items consist of two statements, one labelled as 'Assertion (A)' and the other as 'Reason (R)'.

You are to examine these two statements carefully and select the correct answer to these items using the code given below.

22. (A) P waves (primary waves) travel faster in the earth than that of S waves (secondary waves).

(R) Both P and S waves can be transmitted through the liquid.

Code:

(1) Both A and R are true and R is the correct explanation of A

(2) Both A and R are true but R is not the correct explanation of A

(3) A is true R is false

(4) A is false R is true

23. (A) The Gutenberg Discontinuity divides the outer core from the lower mantle.

(R) The seismic waves refract at this depth.

Code:

(1) Both A and R are true and R is the correct explanation of A

(2) Both A and R are true but R is not the correct explanation of A

(3) A is true R is false

(4) A is false R is true

24. (A) The number of tributaries decreases downstream in a mathematical progression

(R) The stream channel becomes progressively wider downstream.

Code:

(1) Both A and R are true and R is the correct explanation of A

(2) Both A and R are true but R is not the correct explanation of A

(3) A is true R is false

(4) A is false R is true

25. (A) Descending air is incapable of giving rains  
(R) Adiabatic warming reduces relative humidity  
Code:  
(1) Both A and R are true and R is the correct explanation of A  
(2) Both A and R are true but R is not the correct explanation of A  
(3) A is true R is false  
(4) A is false R is true
26. (A) The polar jet stream is located at the tropopause along the polar front.  
(R) It meanders between 30° and 70° N. latitude.  
Code:  
(1) Both A and R are true and R is the correct explanation of A  
(2) Both A and R are true but R is not the correct explanation of A  
(3) A is true R is false  
(4) A is false R is true
27. (A) The make up of soil according to the proportion of sand silt and clay is known as soil texture.  
(R) The way in which sand, silt, clay and humus bond together is known as soil structure.  
Code:  
(1) Both A and R are true and R is the correct explanation of A  
(2) Both A and R are true but R is not the correct explanation of A  
(3) A is true R is false  
(4) A is false R is true
28. (A) The zone of the ocean in which salinity increases rapidly with depth is known as halocline.  
(R) The salinity of the ocean increases up to the bottom of the ocean.  
Codes:  
(1) Both A and R are true and R is the correct explanation of A  
(2) Both A and R are true but R is not the correct explanation of A  
(3) A is true R is false  
(4) A is false R is true

29. (A) The Gnomonic projection is ideal for the airways.  
(R) The scale in the Gnomonic projection is exaggerated away from the centre.  
Codes:  
(1) Both A and R are true and R is the correct explanation of A  
(2) Both A and R are true but R is not the correct explanation of A  
(3) A is true R is false  
(4) A is false R is true
30. Examine the following statements and select the correct answer using the code given below:  
1. Climograph was introduced by Griffith Taylor.  
2. A climograph shows the inter-relationship between relative humidity and temperature  
3. A climograph is a twelve-sided diagram.  
Code:  
(1) 1 and 2 are correct (2) 2 and 3 are correct  
(3) 1 and 3 are correct (4) 1, 2 and 3 are correct
31. Which one of the following statements is not correct ?  
(1) Bar diagrams may be vertical or horizontal  
(2) Bar diagrams may be simple or compound  
(3) Labels of vertical bars can be read more easily  
(4) Simple bars have no subdivisions
32. Examine the following statements and select the correct answer using the code given below :  
1. The network of latitude and longitude is known as graticule.  
2. If you prepare a globe on a scale of one inch to one mile, the radius of the earth will be 110 yards.  
3. Globe is the true representation of the earth.  
4. Globe is the most useful in the field  
Code:  
(1) 1, 2 and 3 are correct (2) 1, 3 and 4 are correct  
(3) 2, 3 and 4 are correct (4) 1, 2, 3 and 4 are correct

33. Match List I with List II and select the correct answer using the code given below:

List I (Natural Vegetation)

- A. Epiphytes
- B. Acacia
- C. Baobab
- D. Juniper

List II (Region)

- 1. Mediterranean
- 2. Equatorial
- 3. Sahara
- 4. Savanna

Code:

(1) A-2, B-3, C-4, D-1

(2) A-2, B-3, C-1, D-4

(3) A-2, B-4, C-3, D-1

(4) A-2, B-4, C-1, D-3

34. Match List I with List II and select the correct answer using the code given below:

List I (City)

- A. Chelyabinsk
- B. Irkutsk
- C. Moscow
- D. Samara

List II (Industrial Region)

- 1. Central Industrial region
- 2. Baikal region
- 3. Volga region
- 4. Ural region

Code:

(1) A-3, B-4, C-2, D-1

(2) A-4, B-2, C-3, D-1

(3) A-4, B-2, C-1, D-3

(4) A-4, B-1, C-3, D-2

35. Match List I with List II and select the correct answer using the code given below:

List I (Mineral)

- A. Lead and Zinc
- B. Copper
- C. Iron ore
- D. Tin

List II (Location)

- 1. Mt. Isa
- 2. Broken Hill
- 3. Tasmania
- 4. Pilbara

Code:

(1) A-2, B-1, C-4, D-3

(2) A-2, B-1, C-3, D-4

(3) A-4, B-3, C-2, D-1

(4) A-4, B-3, C-1, D-2

36. The thickest coal-seam in India is found in:

(1) Bokaro coal field

(2) Jharia coal field

(3) Raniganj coal field

(4) Singrauli coal field

37. Which one of the following statements is not correct?
- (1) The Khadar land consists of new alluvium
  - (2) The Khadar is called as bet in Punjab
  - (3) The Khadar has the fossils of mammals
  - (4) The Khadar alluvium is of dark colour.
38. The highest area under tobacco is in the state of:
- (1) Andhra Pradesh
  - (2) Gujarat
  - (3) Karnataka
  - (4) Uttar Pradesh
39. Examine the following statements and select the correct answer using the code given below:
1. Boggy soils are found in the Ganga-Khadar and Assam Valley
  2. Older alluviums are found in Punjab
  3. Serozem (saline) soils are found in Rajasthan.
  4. Reguar soils are found in Maharashtra and Gujarat
- (1) 1, 2                      (2) 1, 2, 3                      (3) 2, 3                      (4) 1, 2, 3, 4
40. Examine the following statements and select the correct answer using the code given below:
1. Rihand Dam is on tributary of the Son river
  2. Hirakud dam is across the Mahanadi River
  3. Chambal Project is a joint venture of the Rajasthan and Madhya Pradesh states.
  4. Kosi is known as the 'Sorrow of Bihar'.
- Code:
- (1) 1, 2 and 3 are correct
  - (2) 1, 2 and 4 are correct
  - (3) 1, 3 and 4 are correct
  - (4) 1, 2, 3 and 4 are correct
41. Which one of the following is not correctly matched ?
- (1) Kundankulam - Kerala
  - (2) Kalpakkam - Tamil Nadu
  - (3) Kakrapara - Orissa
  - (4) Kaiga - Karnataka

42. Which one of the following is the highest peak in the Eastern Himalayas?
- (1) Abor Hills (Arunachal Pradesh)
  - (2) Brail Range (Cachar Hills)
  - (3) Dapha Bum (Mishmi Hills)
  - (4) Sarmati (Naga Hills)
43. Which one of the following statements is not correct?
- (1) Ennore port lies to the south of Chennai
  - (2) Ennore port has been developed to reduce pressure on Chennai port
  - (3) Vishakhapatnam is the deepest landlocked port of India
  - (4) Pradip handles mainly iron ore and coal
44. Which of the following factors are responsible for the rapid growth of sugar production in south India as compared to north India?
- I. Higher per acre field of sugarcane
  - II. Higher sucrose content of securance
  - III. Lower labour cost
  - IV. Longer crushing period
- (1) I and II
  - (2) I, II and III
  - (3) I, III, and IV
  - (4) I, II and IV
45. The principal copper deposits of India lie in which of the following places?
- (1) Hazaribag and Singbhum of Bihar
  - (2) Khetri and Daribo areas of Rajasthan
  - (3) Anantapur in Andhra Pradesh
  - (4) Siwaliks in Uttar Pradesh and In Karnataka
46. Which of the following are true regarding Jhum cultivation in India?
- I. It is largely practiced in Assam
  - II. It is referred to ass 'slash and burn' technique
  - III. In it, the fertility is exhausted in a few years
- (1) I, II and III
  - (2) II and III
  - (3) I and II
  - (4) I and III

47. Which of the following are true with respect to the Indian Peninsular Plateau?
- I. The southern plateau block is formed mainly of granite and gneiss
  - II. The Deccan lava plateau is an elevated tableland consisting of horizontally arranged lava sheets
  - III. The Malwa plateau dominates the Vindhyan scraps, forming the northern flank of the plateau
  - IV. The trough of the Narmada and Tapi are interposed between the Vindhyan and the Satpura ranges
- (1) I, and III (2) I and II  
(3) I, II, III and IV (4) I, III and IV
48. Which of the following groups accounts for over 90 per cent of India's annual coal production?
- (1) Bihar, Orissa and West Bengal
  - (2) Bihar, Orissa and Madhya Pradesh
  - (3) Orissa, Madhya Pradesh and Tamil Nadu
  - (4) West Bengal, Madhya Pradesh and Tamil Nadu
49. The scarcity or crop failure of which of the following can cause a serious edible oil crisis in India?
- (1) Coconut (2) Groundnut
  - (3) Linseed (4) Mustard
50. Which of the following factors are responsible for present crisis in the jute industry in India?
- I. The decline in overseas market
  - II. Inadequately of raw jute
  - III. Stiff competition from synthetic packing materials
- Select the correct answer from the codes given below
- (1) I and II (2) I, and II and III  
(3) I and III (4) II and III
51. The largest estuary in India is at the mouth of river–
- (1) Hooghly (2) Bhagirathi
  - (3) Godavari (4) Krishna

52. Which of the following cities are situated on the banks of river 'Tigris'?
- (1) Sharjah (2) Baghdad  
(3) Dubai (4) London
53. Which of the following places are connected by the Adam's bridge?
- (1) Israel and Jerusalem  
(2) Amman and Damascus  
(3) Persian Gulf and Gulf of Oman  
(4) Dhanushkodi and Talaimannar
54. Which one of the following rivers flow near Paris?
- (1) Rhine (2) Volga  
(3) Danube (4) Thames
55. In India, which of the following are the Southern most hills?
- (1) Anaimalai hills (2) Cardamom hills  
(3) Nilgiri hills (4) Javacli hills
56. Which one of the following areas of India does not come under the zone of high seismic intensity?
- (1) Uttarakhand (2) Karnataka Plateau  
(3) Kachchh (4) Himachal Pradesh
57. Between which ranges does the Kashmir valley in the Himalayas lie?
- (1) Siwalik and Pir Panjal (2) Pir panjal and Dhauladhar  
(3) Zanskar and Pir Panjal (4) Dhauladhr and Zanskar
58. The largest glaciers are
- (1) Mountain glaciers (2) Alpine glaciers  
(3) Continental glaciers (4) Piedmont glaciers
59. The Harmattan is
- (1) Cool, extremely dry wind that forms over the Sahara and blows westward or south westward to the African coast  
(2) Wind that blows during the dry season from December to February  
(3) Tertiary wind that carry great quantities of fine dust from the Sahara  
(4) All of the above



60. The largest fish exporting region in the world is
- (1) The north-east Atlantic region
  - (2) The north-east pacific region
  - (3) The north-west pacific region
  - (4) The south-east Asian region
61. The hot, dry wind on the east or leeward side of the Rocky mountains (North America) is called
- (1) The Chinook
  - (2) The Sirocco
  - (3) The Harmattan
  - (4) The Loo
62. The important mountains of Europe include
- (1) Andes, Alps, Pyrenees
  - (2) Alps, Carpathians, Pyrenees, Apennines
  - (3) Alps, Himalayas, Rock mountains
  - (4) None of the above
63. The ionosphere contains ionized air that protects the earth from
- (1) The ultraviolet rays of the sun
  - (2) The infrared rays of the sun
  - (3) The falling meteorites
  - (4) None of the above
64. The land-sea distribution or the positions of the world's continents and major oceans influences
- (1) The major pressure belts that develop from the general circulation of the atmosphere
  - (2) The development of the mid-latitude cyclonic depressions, at the convergence zone between polar and subtropical air masses
  - (3) Both (1) and (2)
  - (4) None of the above
65. The main vegetation of the steppe type climatic regions is
- (1) Evergreen forests
  - (2) Evergreen deciduous forests
  - (3) Large grasslands
  - (4) Coniferous forests

66. The main objective of multi-purpose river projects are
- (1) Extension of irrigation facilities by constructing dams to store surplus water during the rainy season, for release in summer
  - (2) Power generation by constructing hydro power stations
  - (3) Flood controls and making rivers navigable
  - (4) All of the above
67. The Mistral is
- (1) Very cold wind, which blows down from the plateau of central France
  - (2) Swift, dry, cold northerly wind that blows down from the western Alps and the plateau of Southern France and out over the Mediterranean
  - (3) Wind that blows for 100 days a year and may cause extensive frost damage to plants
  - (4) All of the above
68. The year \_\_\_\_\_ is called a Great Divide in the demographic history of India.
- (1) 1901                      (2) 1921                      (3) 1941                      (4) 1951
69. The modern theory of plate tectonics states
- (1) The creation of oceanic crust and the drifting of continents
  - (2) The convection currents within the earth's mantle cause the creation of new oceanic crust at the mid oceanic ridges
  - (3) That the oceanic crust is destroyed at areas where this crust type becomes subducted under the lighter continental crust
  - (4) All of the above
70. The ministry of Water Resources lays down policies and programs for the development and regulation of the country's water resources. It covers
- (1) Sectorial planning, coordination and policy guidelines
  - (2) Technical examination and techno-appraisal of project providing central assistance to specific projects
  - (3) Facilitation of external assistance in resolution of interstate water disputes, policy formulation planning and development of ground water resources
  - (4) All of the above

71. The main crops of kharif are  
(1) Rice, jowar, bajra (2) Ragi, maize  
(3) Cotton, jute (4) All of the above
72. The longest day (shortest night) in the southern hemisphere is  
(1) June 21 (2) December 22  
(3) July 21 (4) November 22
73. The longest era of the classification of the history of earth is  
(1) Cainozoic era (2) Pre-Cambrian era  
(3) Palaeozoic era (4) Mesozoic era
74. The oldest rocks found in ocean basin are \_\_\_\_\_ than the oldest continental rocks.  
(1) Older (2) Younger  
(3) Larger (4) Smaller
75. The process of weathering results into  
(1) The complete loss of particular atoms or the compounds from the weathered surface  
(2) The addition of specific atoms or compounds to the weathered surface  
(3) A breakdown of one mass into two or more masses, with no chemical change in the mineral or rock  
(4) All of the above
76. The relative abundance of dissolved salts in sea water in descending order is as follows  
(1) Chlorine, sodium, sulphate, magnesium, calcium, potassium  
(2) Sodium, chlorine, magnesium, potassium, sulphate, calcium  
(3) Chlorine, magnesium, calcium, sodium, potassium, sulphate  
(4) Chlorine, sodium, magnesium, calcium, potassium, sulphate
77. The process that explains the recent changes in the height of sea level in coastal areas of eastern and northern Canada and Scandinavia is  
(1) Isostasy (2) Continental drift  
(3) Plate tectonics (4) None of the above
78. The region of three W's that is wheat, wool and wine is  
(1) Mediterranean climatic regions  
(2) China type climatic regions

- (3) Steppe type climatic regions  
 (4) Equatorial regions
79. The Rhine River of northern Europe empties into  
 (1) The Baltic Sea (2) The North Sea  
 (3) The Bay of Biscay (4) The Adriatic Sea
80. The Paithan ( Jayakwadi) Hydro-electric project with the help of Japan, is on the river  
 (1) Ganga (2) Cauvery (3) Narmda (4) Godavari
81. The percentage of irrigated land in India is about  
 (1) 45 (2) 65 (3) 35 (4) 25
82. The southernmost point of peninsular India, that is, Kanyakumari, is  
 (1) North of Tropic of Cancer  
 (2) South of the Equator  
 (3) South of the Capricorn  
 (4) North of the Equator
83. The pass located at the southern end of the Nilgiri Hills in south India is called  
 (1) The Palghat gap (2) The Bhorghat pass  
 (3) The Thalghat pass (4) The Bolan pass
84. Which among the following is/are the major factor/factors responsible for the monsoon type of climate in India?  
 I. Location  
 II. Thermal contrast  
 III. Upper air circulation  
 IV. Inter-tropical convergence zone  
 (1) I (2) II, III  
 (3) II, III and IV (4) I, II, III and IV
85. The India's highest annual rainfall is reported at  
 (1) Namchi, Sikkim  
 (2) Churu, Rajasthan  
 (3) Mawsynram, Meghalaya  
 (4) Chamba, Himachal Pradesh

86. A topographical map would most likely be used to
- (1) Identify the major agricultural products of Egypt
  - (2) Determine the population of Beijing, China
  - (3) Estimate the elevation of Bangkok, Thailand
  - (4) Count the number of provinces in India
87. Which one of the following is a cold current?
- (1) Gulf stream
  - (2) Kuroshio
  - (3) Benguela
  - (4) Brazil
88. The Pacific Ocean was so named by
- (1) Bartholomew Diaz
  - (2) Magellan
  - (3) Vasco da Gama
  - (4) Columbus
89. Rhine valley in France is known for mineral deposits of
- (1) Bauxite
  - (2) Nickel
  - (3) Bickel
  - (4) Zinc
90. The latitudinal differences in pressure delineate a number of major pressure zones, which correspond with
- (1) Zones of climate
  - (2) Zones of oceans
  - (3) Zones of land
  - (4) Zones of cyclonic depressions
91. Without \_\_\_ the equator would be much hotter than it is while the poles would be much cooler.
- (1) Latitudinal redistribution of heat
  - (2) Cycle of air circulation
  - (3) Global wind pattern
  - (4) All are similar terms
92. Who was the first man to reach the South Pole?
- (1) Robert Walpole
  - (2) Amundson
  - (3) Robert Peary
  - (4) None of these
93. The iron and steel industries of which of the following countries are almost fully dependent on imported raw materials?
- (1) Britain
  - (2) Japan
  - (3) Poland
  - (4) Germany

94. The ionosphere includes
- (1) Mesosphere
  - (2) Thermosphere
  - (3) Thermosphere and exosphere
  - (4) Thermosphere and Mesosphere
95. The Yarlung Zangbo river, in India, is known as
- (1) Ganga
  - (2) Indus
  - (3) Brahmaputra
  - (4) Mahanadi
96. The only zone in the country that produces gold is also rich in iron is
- (1) North-eastern zone
  - (2) North-western zone
  - (3) Southern zone
  - (4) None of the above
97. The percentage of earth surface covered by India is
- (1) 2.4
  - (2) 3.4
  - (3) 4.4
  - (4) 5.4
98. The present forest area of India, according to satellite data, is
- (1) Increasing
  - (2) Decreasing
  - (3) Static
  - (4) Decreasing in open forest area but increasing as per the satellite data
99. The refineries at Mathura, Digboi and Panipat are set up by
- (1) Indian Oil Corporation Ltd.
  - (2) Hindustan Petroleum Corporation Ltd.
  - (3) Bharat Petroleum Corporation Ltd.
  - (4) Crude Distillation unit of Madras Ref ineries Ltd.
100. What is the predominant type of Indian agriculture?
- (1) Commercial agriculture
  - (2) Extensive agriculture
  - (C) Plantation agriculture
  - (4) Subsistence agriculture

# ANSWER KEY

## PAPER-I

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer	4	1	4	2	4	3	1	2	1	2	1	4	3	4	1	1	4	2	3	3
Question	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Answer	4	1	2	4	1	4	1	3	4	2	4	3	1	1	1	2	3	4	3	4
Question	41	42	43	44	45	46	47	48	49	50										
Answer	2	2	1	4	1	4	4	4	3	4										

## PAPER-II

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer	2	2	2	1	1	2	2	1	1	4	4	2	2	1	2	4	2	2	2	3
Question	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Answer	4	3	2	2	1	2	2	3	2	4	3	1	1	3	1	4	4	1	4	4
Question	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Answer	3	3	1	4	1	1	3	1	2	1	1	2	4	1	2	2	3	3	4	1
Question	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Answer	1	2	3	3	3	4	4	2	4	4	4	2	2	2	4	1	1	1	2	4
Question	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Answer	3	4	1	4	1	3	3	2	1	1	4	2	2	3	3	3	1	2	1	4

## HINTS AND SOLUTIONS

### PAPER-I

1.(4) Eklavya schools will be established for scheduled caste (SC) and schedule tribe students by 2022 on the lines of Navodaya schools.

They will be model residential schools set up in each Block. It will in areas with more than 50% tribal areas and 20,000 tribal people.

These schools will be part of Navodaya Vidyalayas. It will provide training in sports and skill development.

It has special facilities for preserving local art and culture.

2.(1) Revitalising Infrastructure and Systems in Education (RISE) Scheme :

RISE scheme aims to lend low-cost funds to government higher educational institutions. It will be launched with a total investment of Rs. 1 lakh crore in the next four years. It will be financed via restructured higher education financing agency (HEFA), a non-banking financial company.

**3.(4)** The World Sustainable Development Summit–2018 was held in New Delhi on February 16. The summit will address a wide variety of issues, including combating land degradation and air pollution, effective waste management and create financial mechanisms to enable effective climate change mitigation.

The theme of the 2018 Summit is –Partnerships for a Resilient Planet, which seeks to create action frameworks to resolve some of the most urgent challenges facing developing economies in the backdrop of climate change.

It seeks to bring together on a common platform, global leaders and thinkers in the fields of sustainable development, energy and environment sectors.

**4.(2)** The 9-member committee, headed by former ISRO chief K Kasturirangan, was constituted by the Union HRD Ministry to draft new National Education Policy (NEP) on June 2017.

The committee will submit its report by March 31, 2018. The existing NEP was framed in 1986 and revised in 1992.

**5.(4)** An historic agreement to combat climate change and unleash actions and investment towards a low carbon, resilient and sustainable future was agreed by 195 nations in Paris in Dec 2015.

The Paris Agreement for the first time brings all nations into a common cause based on their historic, current and future responsibilities.

The universal agreement's main aim is to keep a global temperature rise this century well below 2 degrees Celsius and to drive efforts to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels.

The 1.5 degree Celsius limit is a significantly safer defense line against the worst impacts of a changing climate.

**6.(3)** Under Part XXI of the Constitution of India, which deals with “Temporary, Transitional and Special provisions”, the State of Jammu and Kashmir has been accorded special status under Article 370.

Even though included in 1st Schedule as 15th state, all the provisions of the Constitution which are applicable to other states are not applicable to J&K.

Special Features- J&K is the only state in India which has a Constitution of its own. The Constitution of J&K was enacted by a separate Constituent Assembly set up by the State and it came into force on 26th January 1957.

**7.(1)** Global warming is the increase in Earth's near-surface air and ocean temperatures.



The greenhouse effect is when water and carbon dioxide absorb outgoing infrared radiation, increasing the planet's temperature.

Greenhouse gases contribute to global warming.

What is determined to be a greenhouse gas is any heat-trapping gas present in the Earth's atmosphere.

The two most common greenhouse gases are water vapor and carbon. These gases help absorb infrared radiation and regulate the Earth's climate.

However, the increase in industrial production has increased the amount of greenhouse gases present in the atmosphere.

The increase in carbon dioxide emissions has made it difficult for heat to escape the atmosphere which in turn contributes to the warming effect.

**8.(2) The Vienna Convention** for the Protection of the Ozone Layer is a Multilateral Environmental Agreement. It was agreed upon at the Vienna Conference of 1985 and entered into force in 1988.

It acts as a framework for the international efforts to protect the ozone layer.

**The Montreal Protocol** on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

**The Minamata Convention on Mercury** is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.

The Convention was signed by delegates representing close to 140 countries on 19 January 2013 in Geneva and adopted later that year on 10 October 2013 on a Diplomatic Conference held in Kumamoto, Japan. The Convention is named after the Japanese city Minamata.

**9.(1)** In July 2013, Supreme Court had ruled that a person, who is in jail or in police custody, cannot contest elections to legislative bodies.

Representation of the People (Amendment and Validation) Bill, 2013 however, brought two key changes:

Firstly, even if a person is prohibited from voting due to being in police custody or

in jail, as long as his name is entered on the electoral roll he shall not cease to be an elector.

This implies that he can file nomination for an election. Secondly, definition of “disqualified” in the Act has been amended.

Prior to this act, the definition of disqualified means disqualified for either being chosen as or being a MP or MLA.

Secondly, definition of “disqualified” in the Act has been amended.

The amendment adds a ground to the definition that the disqualification has to be due to conviction for certain specified offences and can be on no other ground.

Conviction for only these certain offences would result in the person’s name being removed from the electoral roll and he would cease to be an elector.

#### **10.(2)**

**11.(1)** Water Borne diseases are largely caused by micro-organisms present in human or animal waste, which find their way into human body.

These diseases are infectious, which means that they can spread from one person to another.

So high standards of hygiene and sanitation are needed to stop the disease from spreading.

Waterborne diseases include:

- (i) Typhoid fever
- (ii) Giardia
- (iii) Dysentery
- (iv) Cholera
- (v) Diarrhoea (caused by a variety of pathogens)
- (vi) Hepatitis
- (vii) Polio
- (viii) Worms

**12.(4)** Research has been defined in a number of different ways.

A broad definition of research is given by Godwin Colibao: “In the broadest sense of the word, the definition of research includes any gathering of data, information, and facts for the advancement of knowledge.”

Another definition of research is given by John W. Creswell, who states that “research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue”.

It consists of three steps: pose a question, collect data to answer the question, and present an answer to the question.

The Merriam-Webster Online Dictionary defines research in more detail as “a studious inquiry or examination; especially investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws.

**13.(3)** In descriptive survey method- we’ve to use questionnaires (Because it’s ‘survey).

Descriptive research is all about describing people who take part in the study.

There are three ways a researcher can go about doing a descriptive research project, and they are: Observational, Case study and Survey, defined as a brief interview or discussion with an individual about a specific topic

Historical method- we have to use primary and secondary sources.

Historical method comprises the techniques and guidelines by which historians use primary sources and other evidence, including the evidence of archaeology, to research and then to write histories in the form of accounts of the past.

In experimental method- we can collect data in a way that permit standardized tests.

The experimental method is a systematic and scientific approach to research in which the researcher manipulates one or more variables, and controls and measures any change in other variables.

An ex post facto research design is a method in which groups with qualities that already exist are compared on some dependent variable.

Also known as “after the fact” research, an ex post facto design is considered quasi-experimental because the subjects are not randomly assigned - they are grouped based on a particular characteristic or trait.

**14.(4)** According to Burton, Teaching is the stimulation, guidance, direction and

encouragement of learning.

Good teaching requires some basics that a teacher should follow to achieve the main goal of teaching.

Good teaching is as much about passion as it is about reason. It's about not only motivating students to learn, but teaching them how to learn, and doing so in a manner that is relevant, meaningful, and memorable.

It's about caring for your craft, having a passion for it, and conveying that passion to everyone, most importantly to your students.

Good teaching is also about bridging the gap between theory and practice.

It is about listening, questioning, being responsive, and remembering that each student and class is different. It is about caring, nurturing, and developing minds and talents.

Diagnosis, Remedy, Direction and Feedback are required for good teaching.

**15.(1)** The National Institution for Transforming India, also called NITI Aayog, was formed via a resolution of the Union Cabinet on January 1, 2015.

NITI Aayog is the premier policy 'Think Tank' of the Government of India, providing both directional and policy inputs.

While designing strategic and long term policies and programmes for the Government of India, NITI Aayog also provides relevant technical advice to the Centre and States.

The Government of India, in keeping with its reform agenda, constituted the NITI Aayog to replace the Planning Commission instituted in 1950.

An important evolutionary change from the past, NITI Aayog acts as the quintessential platform of the Government of India to bring States to act together in national interest, and thereby fosters Cooperative Federalism.

The Prime minister is its Chairperson.

**16.(1)** Horizontal communication is the communication where information or messages flows among the similar or same level statuses of people in the organizational structure.

Horizontal communication is the communication that flows laterally within the organization, involves persons at the same level of the organization. Horizontal

communication normally involves coordinating information and allows people with the same or similar rank in an organization to cooperate or collaborate. Thus in terms of statuses horizontal method is used.

**17.(4)** Spam is an irrelevant or unsolicited messages sent over the Internet, typically to large numbers of users, for the purposes of advertising, phishing, spreading malware, etc.

Spam is flooding the Internet with many copies of the same message, in an attempt to force the message on people who would not otherwise choose to receive it. Most spam is commercial advertising, often for dubious products, get-rich-quick schemes, or quasi-legal services.

**18.(2)** Propositions are contradictory when the truth of one implies the falsity of the other, and conversely.

if 'All thieves are poor' is false, then the proposition 'Some thieves are not poor' must be true.

**19.(3)** Non verbal communication is communication of feelings, emotions, attitudes, and thoughts through body movements / gestures / eye contact, etc.

$$\begin{aligned} \text{20.(3) \% increase} &= \frac{0.25 \text{ crore}}{1 \text{ crore}} \times 100 \\ &= 25\% \end{aligned}$$

**21.(4)** For company A

$$\begin{aligned} &1 + 1.25 + 1.5 + 1.75 + 1.75 + 1.75 + 2 \\ &= 11 \text{ crore} \end{aligned}$$

$$\begin{aligned} \text{22.(1)} \quad (2.5 - 1) \text{ crores} &= 1.5 \times 100 \text{ 00 000} \\ &= 150 \text{ 00 000} \end{aligned}$$

**23.(2)** Total production of B

$$\begin{aligned} &= 2.5 + 2.5 + 3 + 2.75 + 2.25 + 2.25 + 2.5 \\ &= 17.75 \end{aligned}$$

$$\text{Average production} = \frac{17.75}{7} = 2.55$$

**24.(4)** In year 2004.

**25.(1)** Qualitative data collection techniques were used as the primary research methods

for this study. Participant and direct observation plus note taking were the most important techniques used.

**26.(4)** Production was at very low level.

**27.(1)** Ethnic diversity of the people was not appropriately realized by the Central Government.

**28.(3)** Central economic planning found to be difficult because autonomy was given to the States in certain matters

**29.(4)** Because that time no common language emerged.

**30.(2)** “The Indianisation of the Indian Civil Service” , can be cited as an exercise in democratic practice in India before Independence

**31.(4)** The information to be collected in survey method are related to present position, aims of the research & the attainment of aim of research

Exposure units must be defined Must be considered in developing DQOs for project, or results may not be accepted.

Sufficient samples are required 8-10 samples when contaminant concentrations vary within a narrow range 10-15 sample when concentrations are less predictable  
Calculate 90th Upper Confidence Limit ( UCL)

**32.(3)** One of the essential characteristics of research is usability.

**33.(1)** A parliamentary system is a system of democratic government in which the ministers of the Executive Branch derive their legitimacy from and are accountable to a Legislature or parliament; the Executive and Legislative branches are interconnected. It is a political system in which the supreme power lies in a body of citizens who can elect people to represent them.

**34.(1)** IVRI is situated in Izat Nagar.

IAT is situated in Pune

IISc is situated in Bangalore

NIEPA is situated in Delhi.

**35.(1)** The prime minister of India is appointed from the leading Party in Lok Sabha.

**36.(2)** The study of interrelations between Organism and their environment is called ecology.

**37.(3)** The term ICT is now also used to refer to the convergence of audio-visual and

telephone networks with computer networks through a single cabling or link system.

**38.(4)** Fossil fuels are fuels made by natural processes such as anaerobic decomposition of buried dead organisms.

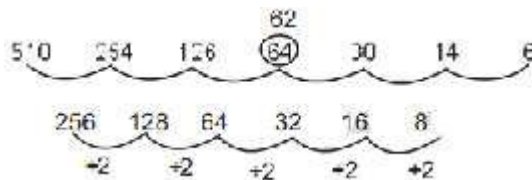
Ex. Oil, Natural gas, coal etc.

**39.(3)** Noise in excess of 80-100DB is called noise pollution.

**40.(4)** Effectiveness of teaching depends on Subject Understanding of the Teacher

**41. (2)** The participation of students will be maximum if Discussion Method is used for teaching.

**42.(2)**



“30, 64 is wrong & must be replaced by 62.

**43.(1)** Deductive reasoning determines whether the truth of a conclusion can be determined for that rule, based solely on the truth of the premises.

**44.(4)**  $(2)^2 = 4$ ,  $(5)^2 = 25 \Rightarrow 425$

$(2)^2 = 4$ ,  $(4)^2 = 16 \Rightarrow 416$

$(3)^2 = 9$ ,  $(5)^2 = 25 \Rightarrow 925$ .

**45.(1)** Such decisions as given in the statement are taken only after taking the existing vacancies into consideration. So, I implicit while II does not implicit.

**46.(4)** CD-ROM disk is the latest write-once optical storage media

**47.(4)** Domain Name identifies a specific web page and its computer on the Web.

**48.(4)** The required region is the one which is common only to the rectangle and circle and is not a part of either the triangle or square

**49.(3)** The required region is the one which lies inside the circle but outside the rectangle, square and triangle,

**50.(4)** The man in the photo is the son of the sister of Bajpai. Hence, Bajpai is the maternal uncle of the man in the photograph.

## PAPER-II

**1.(2)** The urban decadal growth rate of population is more than that of rural areas. This is because urbanization is increasing. More and more areas are coming under the definition of "urban areas".

The contribution of rural and urban areas to the total increase in population is nearly equal - 91 million.

**2.(2)** Before 2011 census, WB was the state that had the second highest population density. This changed after the census 2011 report and Bihar overtook WB.

**3.(2)** The fact is the decadal growth rate saw a decline first in 1981 after independence. This is the 4th time we are witnessing a decline.

The census, 2011, uses definition of workers as - Workers are those who have worked for at least one day during the reference year.

**4.(1)** The neighbouring countries of India in decreasing order of border length are : Bangladesh-China-Pakistan-Nepal-Myanmar-Bhutan-Afghanistan.

**5.(1)** Bamboo and tendu leaves are minor forest produce. Only Wood (timber) is a major forest product. All other products are minor.

Minor forest products include all products obtainable from the forests other than wood and thus comprise products of vegetable and animal origin.

**6.(2)** The monsoon winds are trapped within a funnel shaped valley in this region. Both these places are south of the Khasi hills where the monsoon winds gets trapped withing a funnel shaped valley giving copious rainfall.

**7.(2)** Panplane — Crickmay

Pediplane — King

Peniplain — Davis

Primarumpf — Penck

**8.(1)** Effusive eruption — Kilauea – (Hawaii)

Explosive volcano — Mount Pinatubo

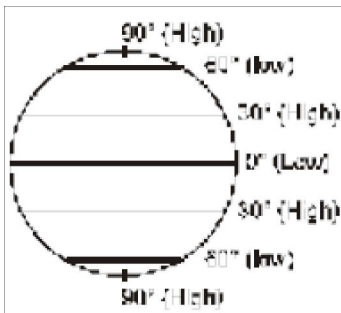
Glowing cloud — Martinique (Caribbean Islands)

Composite cone — Mt. Orizba (Mexico)



- 9.(1)** Consequent Valley — Course determined by the initial slope of the land  
 Subsequence Valley — Course shifted from the original consequent ones to more readily erosible rocks.  
 Insequent Valley — Showing no apparent adjustment to structural control  
 Obsequent Valley — Draining in a direction opposite to the of the original consequent valleys.
- 10.(4)** All are correct
- 11.(4)** All are correct
- 12.(2)** Aurora borealis occur in the Earth's ionosphere, and result from collisions between energetic electrons (sometimes also protons, and even heavier charged particles) and atoms and molecules in the upper atmosphere. The ultimate origin of the energy which powers the aurora borealis is the Sun – via the solar wind – and the Earth's magnetic field.

**13. (2)**



- Subpolar low — 60° N, 60° S  
 Subtropical high — 20° to 35° N and S  
 Equatorial low — 10°N to 10° S  
 Polar high — 90° N, 90° S

- 14.(1)** Hurricanes/typhoons — Circular isobars  
 Tropical storms — Closed isobars  
 Tropical depressions — Gale force, light rainfall  
 Tropical disturbance — Low winds, Patches of clouds
- 15.(2)** Cumulonimbus is a dense towering vertical cloud associated with thunderstorms and atmospheric instability, forming from water vapour carried by powerful upward air currents.

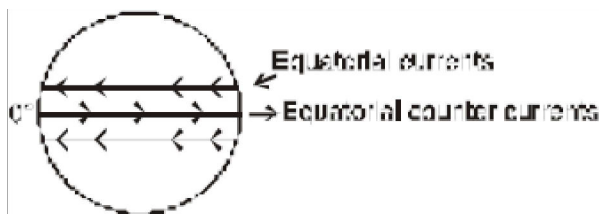
Cumulonimbus may form alone, in clusters, or along cold front squall lines. They may produce lightning and other dangerous severe weather, such as gusts and hail.

Cumulonimbus progress from over-developed cumulus congestus clouds, and may further develop as part of a supercell. Cumulonimbus is abbreviated Cb, and are designated in the D2 family.

16.(4) The typical area of sal forest in the Indian peninsular upland occurs on the Malwa plateau

17.(2) Aldrich/Tonga lies in South Pacific Challenger lies in North Pacific Narer/Puerto Rico lies in North Atlantic Romanche lies in South Atlantic

18.(2) By Counter equatorial currents.



19.(2) Coral reefs are underwater structures made from calcium carbonate secreted by corals.

Coral reefs are colonies of tiny living animals found in marine waters that contain few nutrients. Most coral reefs are built from stony corals, which in turn consist of polyps that cluster in groups. The polyps are like tiny sea anemones, to which they are closely related.

Unlike sea anemones, coral polyps secrete hard carbonate exoskeletons which support and protect their bodies. Reefs grow best in warm, shallow, clear, sunny and agitated waters.

20.(3) Mollisols - Grassland, not Taiga

21.(4) All are correct

22.(3) P waves travel faster and are the first to be recorded on seismograph.

P-waves can be transmitted through the liquid but S-waves are not.

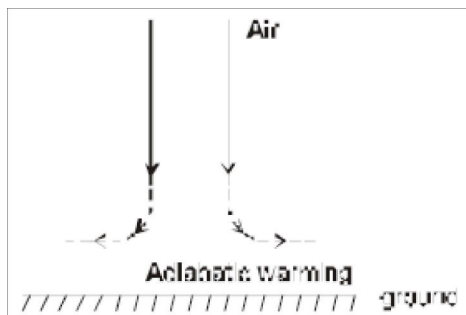
23.(2)



Gutenberg discontinuity divides outer core with inner mantle. Since, there is a change of medium from solid to liquid. Hence the ray gets refracted at this depth.

24.(2) The number of tributaries decreases and the original channel becomes wider as we go to the downstream.

25.(1)



Whenever air ascends, it condenses & gives rain. While descending air get warm adiabatically and does not give any rains.

26.(2) Both A and R are true individually, R is not the explanation of A

27.(2) Texture represents the average size of the particles of the soil which is determined by amount of sand, silt and clay.

Their composition with humus will define the structure of soil.

28. (3)

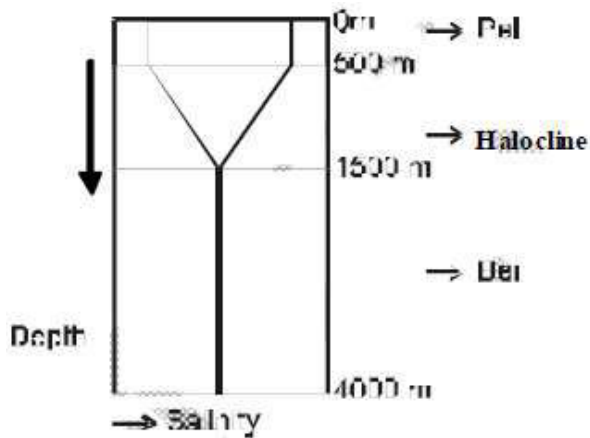


Fig: Variation of salinity with depth.

Rapid increase or decrease of salinity with depth is known as Halocline. In Benthic zone salinity remains uniform and constant.

29.(2) Both A and R are true individually; R is not the explanation of A

30.(4) All are correct

31.(3) Labels of horizontal bar can be read more easily as compared to vertical bar.

32.(1) Globe has limited use or significance in the field of practical purpose.

33.(1) Baobab is Savanna vegetation.

34.(3) Chelyabinsk — Ural region

Irkutsk — Baikal region

Moscow — Central Industrial region

Samara — Volga region

35.(1) Tin is found in Tasmania

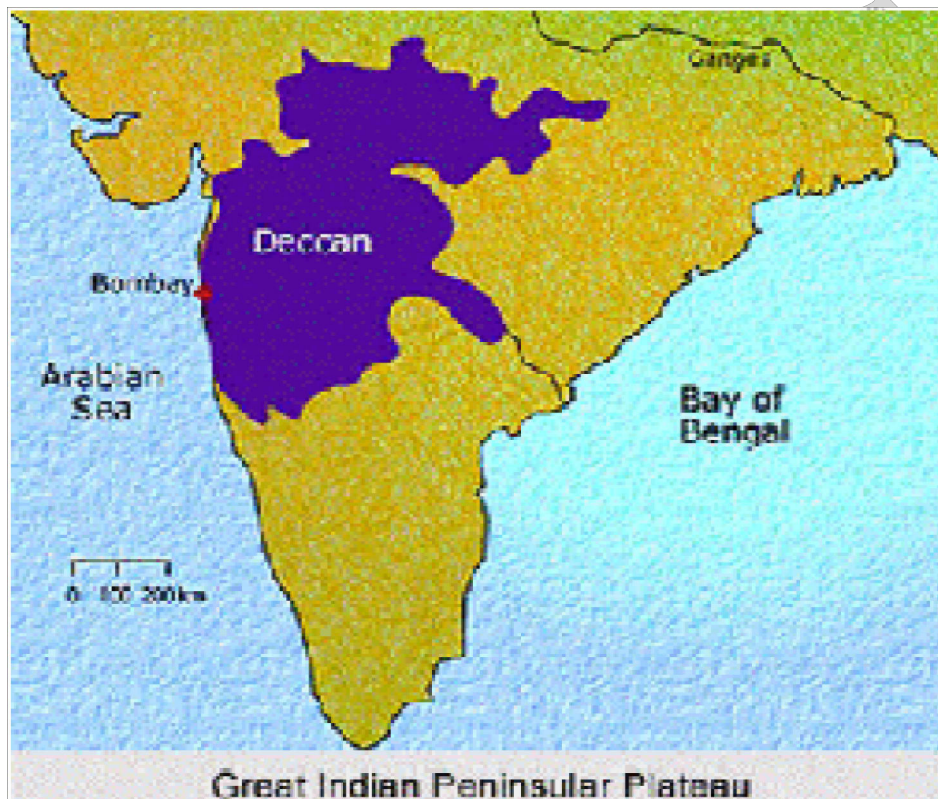
36.(4) The coal reserves in the north-eastern part of Singrauli coal field, covering an area of around 220 km<sup>2</sup>, is 9,121 million tonnes, out of which 2,724 million tonnes are proved reserves and the rest is inferred or indicated. Thickness of coal seams in Indian coalfields generally range from 1 m to 30 m. An exceptionally thick seam of 138 m has been discovered in Singrauli coal field

37.(4) The Khadar soils contain calcareous concretions (Kankars). The soil is more loamy and clayey in the lower and middle Ganga plain and the Brahmaputra valley. The colour of the alluvial soil varies from the light grey to ash grey.

Crops: rice, sugarcane, tobacco, banana, cotton, wheat, jute, maize, oilseeds and vegetables.

- 38.(1) About 40 per cent of the total Virginia tobacco production is used for domestic cigarette industry while the rest is exported to markets all over the world. Virginia tobacco is grown mostly in the States of Andhra Pradesh and Karnataka. In Andhra Pradesh the cultivation of Virginia tobacco is concentrated in the coastal districts of Prakasam, Guntur, Krishna, East and West Godavari and Nellore and in Khammam, Karimnagar and Warangal Districts of Telangana.
- 39.(4) All are correct
- 40.(4) All are correct
- 41.(3) “Kakrapar - Orissa” Is not correctly matched.
- 42.(3) Namdapha National Park is the largest protected area in the Eastern Himalaya biodiversity hotspot and is located in Arunachal Pradesh in Northeast India. The park is located between the Dapha bum range of the Mishmi Hills and the Patkai range with a wide altitudinal range between 200 m asl and 4571 m asl
- 43.(1) Ennore port lies north of Chennai.
- 44.(4) Sugar cane of south has higher sucrose content (more sweet), and requires longer period for crushing.
- 45.(1) India's copper ore reserves have been estimated at 400 million tonnes, with a metal content of 5 million tones. The principal copper belt of India lies in Singhbhum and Hazaribagh in Bihar. The mining centers are located at Mosabani, Gahatsila, Thobani and Badia of Singhbhum, Hazaribagh of Bihar, the Khetri and Dariba area of Rajasthan, and Agnigundala of Andhra Pradesh, Total production is 2.6 million tones.
- 46.(1) Jhum (Shifting) cultivation is a primitive practice of cultivation in States of North Eastern Hill Region of India and people involved in such cultivation are called Jhumia. The practice involves clearing vegetative/forest cover on land/slopes of hills, drying and burning it before onset of monsoon and cropping on it thereafter. After harvest, this land is left fallow and vegetative regeneration is allowed on it till the plot becomes reusable for same purpose in a cycle. Meanwhile, the process is repeated in a new plot designated for Jhum cultivation during next year. Initially, when Jhum cycle was long and ranged from 20 to 30 years, the process worked well

47.(3) The Great Indian Peninsular Plateau, alternatively known as the Plateau of the Peninsular India, is a vast plateau, comprising most of the southern part of the country. The Great Indian Peninsular Plateau is formed essentially of the ancient igneous rocks. Malwa Plateau is drained to the north and is formed by horizontally bedded sandstones and limestones that were laid down during the earlier Gondwana period. During this period, the Malwa Plateau was submerged under the sea. South of the Satpura Mountain Range, the peninsula is named the Deccan Plateau.



48.(1) Gondwana series forms the coal bearing belt of India which also includes Bihar Orissa & West Bengal

49.(2) Groundnut is currently grown on over 22.2 million hectares world wide with a total production of over 35 million tonnes. India is the world's largest producer of groundnuts, accounting for over 41% of world production respectively. Millions of small-holder farmers in Sub-Saharan Africa grow groundnut as a food and cash crop, accounting for over 9 million hectares of cultivated farmland. Even as India is the world's largest producer, it account for only a small part of international trade because most of its production is consumed domestically as peanut oil.

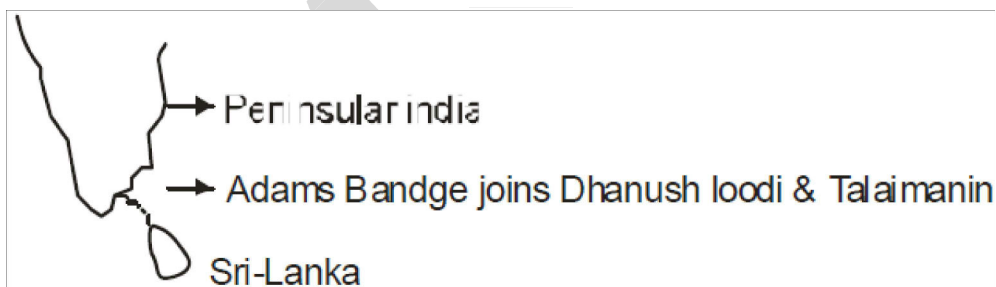
50.(1) Jute holds an extra-edge over other synthetic packing material & faces very less competition. But due to inadequately of raw jute and declining demand for jute in overseas market, Jute industry in India facing a crises.

51.(1) The Hooghly River or Hugli or the Bhagirathi-Hooghly, is an approximately 260 kilometres (160 mi) long distributary of the Ganges River in West Bengal, India. It splits from the Ganges as a canal in Murshidabad District at the Farakka Barrage. The town of Hugli- Chinsura, formerly Hooghly, is located on the river, in the Hooghly (district). The origins of the Hooghly name are uncertain, whether the city or the river was named first. After entering Bangladesh, the main branch of the Ganges is known as the Padma. The Padma is joined by the Jamuna River, the largest distributary of the Brahmaputra. Further downstream, the Padma joins the Meghna River, the second largest distributary of the Brahmaputra, and takes on the Meghna's name as it enters the Meghna Estuary, which empties into the Bay of Bengal.

52.(2) Baghdad, the capital of Iraq, stands on the banks of the Tigris. The Tigris River is the eastern member of the two great rivers that define Mesopotamia, the other being the Euphrates. The river flows south from the mountains of southeastern Turkey through Iraq.

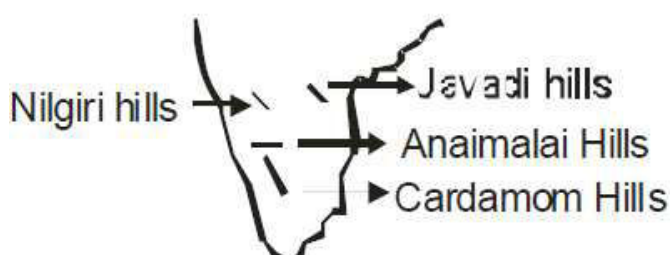
Baghdad, the capital of Iraq, stands on the banks of the Tigris.

53.(4)



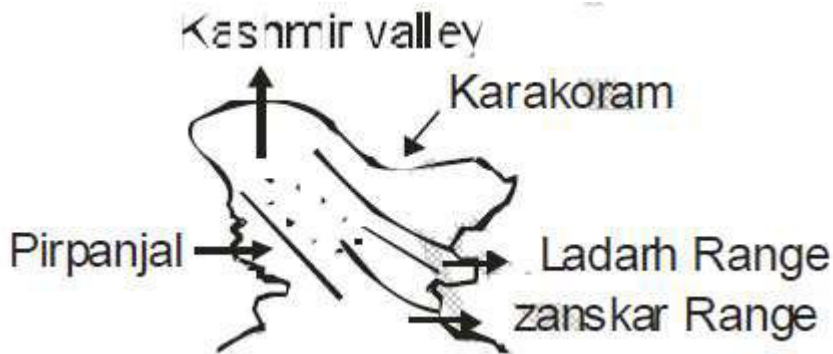
54.(1) Rhine river flows near Paris.

55.(2)



56.(2) Karnataka Plateau does not come under the zone of high seismic intensity whereas Uttarakhand & HP are seismic due to Himalayas Kachch is also seismic due to its interior.

57.(3)



58.(3) The largest glacial bodies, ice sheets or continental glaciers, cover more than 50,000 km<sup>2</sup> (20,000 mile<sup>2</sup>). Several kilometers deep, they obscure the underlying topography. Only nunataks protrude from the surface. The only extant ice sheets are the two that cover most of Antarctica and Greenland. These regions contain vast quantities of fresh water. The volume of ice is so large that if the Greenland ice sheet melted, it would cause sea levels to rise six meters (20 ft) all around the world. If the Antarctic ice sheet melted, sea levels would rise up to 65 meters (210 ft).

59.(4) Harmattan are cool, dry local winds of Africa which blow in December to February which carries great amount of fine dust from the Sahara.

60.(1) North east Atlantic region –In round figures the fisheries of the United Kingdom employ about 65,000 men, or in all give employment to double that number of people, so that, with dependants, approximately half a million of the population of the country depend upon this industry. The annual catch is about a million tons, and the fishing fleet numbers over 12,000 vessels. According to FAO, the world production of sea-fish is 21,000,000 metric tons annually, so that Britain's share is about 5 per cent. of the world's total. The largest and most important of the banks is the well-known Dogger Bank, which, with an area of something like 7,000 square miles, is covered by water only 10—20 fathoms deep.



61.(1) Chinook also known as “snow eaters” as they are hot and dry wind capable of melting ice.

62.(2)  $\left. \begin{array}{l} \text{Andes - America} \\ \text{Himalayas - India} \end{array} \right\} \Rightarrow \text{A, C are incorrect}$

Alps, Carpathians, Pyrenees & Apennines belong to Europe

63.(3) Ionosphere helps from meteorites.

Stratosphere → UV rays & other harmful rays

64.(3) The land sea distribution or the positions of the world's continents and major oceans affects pressure belts & air masses

65.(3) In physical geography, a steppe is an eco region, in the montane grasslands and shrublands and temperate grasslands, savannas, and shrublands biomes, characterized by grassland plains without trees apart from those near rivers and lakes. The world's largest steppe region, often referred to as "the Great Steppe", is found in south western Russia and neighbouring countries in Central Asia, stretching from Ukraine in the west through Turkmenistan

66.(4) The aim of a multipurpose project is storing water for irrigation purposes, generating hydroelectricity by utilising the water stored by the dams, preventing floods and facilitating afforestation in the catchments areas of the reservoirs. Moreover, the dams also provide drinking water, using the canals for navigation in some areas and also facilitating Pisciculture and recreational activities.

67.(4) Mistral is a cold wind that blows for 100 days in a year from central France (western Alps)

68. (2) The year 1921 is taken as the demographic divide for the reason that before this year, the population was not stable, sometimes it increased and at other times it decreased.

The growth rate of population was generally low before 1921. But after this year, there has been considerable and continuous increase in the population.

Between 1901 and 1911, the total increase in population was 5.9% and between 1911 and 1921, there was a decrease of 0.39%. In the decade of 1921-1931, the increase was 11.1%,

69.(4) Plate tectonics (from the Late Latin tectonicus, from the Greek: "pertaining to building") is a scientific theory that describes the large-scale motions of Earth's lithosphere. The model builds on the concepts of continental drift, developed during the first decades of the 20th century. Lateral density variations in the mantle result in convection. Plate movement is thought to be driven by a combination of the motion of the seafloor away from the spreading ridge (due to variations in topography and density of the crust, which result in differences in gravitational forces) and drag, downward suction, at the subduction zones

70.(4) The Ministry of Water Resources, Works and Housing has as its main functions the formulation and co-ordination of policies and programmes for the systematic development of the country's infrastructure requirements in respect of Works, Housing, Water Supply and Sanitation and Hydrology. The Ministry co-ordinates and supervises, by way of monitoring and evaluation of the performance of both public and private agencies responding to and participating in the realisation of the policy objectives established for the sector.

71.(4) Kharif crop, refers to the planting, cultivation and harvesting of any domesticated plant sown in the rainy (monsoon) season on the Asian subcontinent. Such crops are planted for autumn harvest and may also be called the summer or monsoon crop in India and Pakistan.

Kharif crops are usually sown with the beginning of the first rains in July, during the southwest monsoon season Common kharif crops

- Soybean
- Rice is the main kharif crop
- Gwara
- Paddy

72.(2) The winter solstice is the solstice that occurs in winter. It is the time at which the sun appears at noon at its lowest altitude above the horizon. In the Northern Hemisphere this is the Southern solstice, the time at which the Sun is at its southernmost point in the sky, which usually occurs on December 21 to 22 each year. More evident from high latitudes, a hemisphere's winter solstice occurs on the shortest day and longest night of the year, when the sun's daily maximum elevation in the

sky is the lowest. Since the winter solstice lasts only a moment in time, other terms are often used for the day on which it occurs, such as "midwinter", "the longest night", "the shortest day" or "the first day of winter".

73.(2) First, a few words about the Precambrian, an informal name for the vast expanse of time prior to the Phanerozoic Eon (which includes the Paleozoic, Mesozoic, and Cenozoic Eras).

The Earth formed. It then took nearly four thousand million years before the first animals would leave their traces on the planet. This span of time makes up roughly seven-eighths of the Earth's history. During the Precambrian, the most important events in biological history took place. Consider that the Earth formed, life arose, the first tectonic plates arose and began to move, eukaryotic cells evolved, the atmosphere became enriched in oxygen — and just before the end of the Precambrian, complex multicellular organisms, including the first animals, evolved.

The Precambrian is divided into three eons. From youngest to oldest, they are: the Proterozoic, the Archean, and the Hadean (this latter being an informal name).

74.(2) Oceanic crust generally gets subducted and hence has rocks younger to the rocks of continental crust.

75.(4) Weathering is the breaking down of rocks, soils and minerals as well as artificial materials through contact with the Earth's atmosphere, biota and waters. Weathering occurs in situ, or "with no movement", and thus should not be confused with erosion, which involves the movement of rocks and minerals by agents such as water, ice, snow, wind, waves and gravity.

76.(1) Chlorine – comes from NaCl, MgCl<sub>2</sub>, etc.

Sodium – comes from NaCl, KCl, etc.

Sulphate – comes from MgSO<sub>4</sub>, CaSO<sub>4</sub>, etc

Magnesium – comes from MgSO<sub>4</sub>, MgCl<sub>2</sub>, etc

Calcium – comes from CaCO<sub>3</sub>, CaSO<sub>4</sub>

Potassium – comes from KCl, K<sub>2</sub>SO<sub>4</sub>, etc

77.(1) The process that explains the recent changes in the height of sea level in coastal areas of eastern and northern Canada and Scandinavia is Isostasy

78.(1) Mediterranean climatic region is famous for its wine fruit production, flower cultivation & wheat & wool production.

79.(2) The Rhine is a river that flows from Grisons in the eastern Swiss Alps to the North Sea coast in the Netherlands and is the twelfth longest river in Europe, at about 1,233 km (766 mi), with an average discharge of more than 2,000 m<sup>3</sup>/s (71,000 cu f t/s)

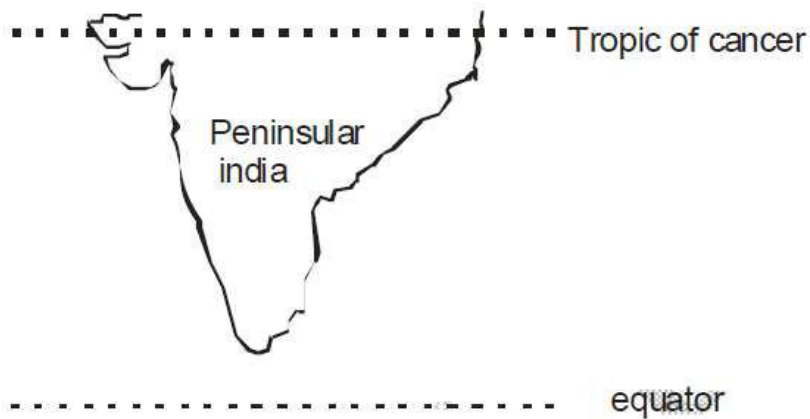


80.(4) The Jaikawadi project is one of the largest irrigation projects in the Indian state of Maharashtra. It is a mult ipurpose project. Its water is used mainly to irrigate agricultural land in the drought-prone Marathw ada region of Maharashtra. It also provides water for drinking and industrial usage to nearby towns and villages and to the municipalities and industrial areas of Aurangabad and Jalna. It is located on Godavari river at the site of Jayakaw adi village in Paithan taluka of Aurangabad district in Maharashtra state, India.

**81.(3)** The Agricultural irrigated land (% of total agricultural land) in India was 35.12 in 2009, according to a World Bank report, published in 2010. Agricultural irrigated land refers to agricultural areas purposely provided with water, including land irrigated by controlled flooding.

The Agricultural irrigated land (% of total agricultural land) in India was 35.12 in 2009, according to a World Bank report, published in 2010. Agricultural irrigated land refers to agricultural areas purposely provided with water, including land irrigated by controlled flooding.

82.(4)



83.(1) The Nilgiri Hills, a range of mountains with at least 24 peaks above 2,000 meters (6,562 ft), in the westernmost part of Tamil Nadu at the junction of Karnataka and Kerala states in Southern India.

They are part of the larger Western Ghats mountain chain making up the southwestern edge of the Deccan Plateau. The hills are separated from the Karnataka plateau to the north by the Moyar River and from the Anaimalai Hills and Palni Hills to the south by the Palghat Gap.

84.(4) The major controlling factor over a tropical monsoon climate is its relationship to the monsoon circulation. The monsoon is a seasonal change in wind direction. In Asia, during the summer (or high-sun season) there is an onshore flow of air (air moving from ocean towards land). In the "winter" (or low-sun season) an offshore air flow (air moving from land toward water) is prevalent. The change in direction is due to the difference in the way water and land heat.

Changing pressure patterns that affect the seasonality of precipitation also occur in Africa though it generally differs from the way it operates in Asia. During the high-sun season, the Intertropical convergence zone (ITCZ) induces rain.

85.(1) Mawsynram in Meghalaya is bound by hills from the 3 sides. Moisture winds which enters from the fourth side have to elevate themselves and due to adiabatic cooling they given lot of rain in the region enclosed.

86.(3) Topographical maps show the lay of the land, and thus would be ideal for use in estimating the elevation of Bangkok, Thailand.

87.(3) Benguela current which moves south to north along the western coast of southern Africa is an example of cold current.

88.(2) In 1519, Portuguese navigator Ferdinand Magellan, in the employ of Spain, began a journey across the Atlantic Ocean to seek a western route to the Spice Islands via South America.

After braving perilous seas and navigating through what are now known as the Straits of Magellan, his small fleet entered an unfamiliar ocean in Nov. 1520. He called this body of water pacific, due to the calmness of the water at the time ('pacific' means peaceful).

When Magellan and his crew entered the Pacific Ocean after their long journey, they thought that the Spice Islands were close at hand. Little did they know that their destination remained thousands of miles away. The explorers had ventured into the largest ocean on Earth. Covering approximately 155 million square kilometers and containing more than half of the free water on Earth, the Pacific is by far the largest of the world's ocean basins. All of the world's continents could fit into the Pacific basin

89.(1) Fishing activity is common in the Mediterranean region and adds to the local economy.

Coastal areas are most suitable for fishing. Sardines are the chief commercial catch.

Mining is an important activity in these regions. Mediterranean basin has not such minerals, which may help in establishing heavy industries. Bauxite is found in the Rhine Valley of France and Yugoslavia.

90.(1) The temperature difference between the equator and the poles generates the global general circulation which redistributes heat from low latitudes to high latitudes. The general circulation is made up of a number of large-scale circulation cells, which consist of rising and descending air. Such large-scale vertical movement of air generates pressure differences across the Earth, which assist the development of surface winds that transfer the heat.

Latitudinal differences in pressure delineate a number of major pressure zones which correspond with zones of climate.

91.(4) A closely related and perhaps more common misconception is that the equator is warmer than the poles because the equator is significantly closer to the sun than

are the poles (i.e. the equator "bulges out" toward the sun). But the professional geoscientists explain this phenomenon by erroneously stating that the northern hemisphere is closer to the sun in June than it is in December because Earth's tilt towards the sun in June makes the northern hemisphere "bulge out" toward the sun. The angle of incident sunlight determines the intensity of the solar energy that strikes the ground and hence how the angle of incident sunlight can be used to explain both seasonal and latitudinal differences in temperature.

This seemingly unrelated topic is included in this activity because an accurate perception of the scale of the solar system helps students understand that (1) Earth's equator is not significantly closer to the sun than are its poles, and (2) all sunrays intercepted by Earth are essentially parallel to each other, whether they strike the equatorial or polar regions -- a concept that is essential for understanding how and why the angle of incident sunlight varies systematically with latitude and season.

92.(2) Roald Engelbregt Gravning Amundsen (Norwegian) 16 July 1872 – 18 June 1928 was a Norwegian explorer of polar regions. The first humans to reach the Geographic South Pole were Norwegian Roald Amundsen and his party on December 14, 1911. Amundsen named his camp Polheim and the entire plateau surrounding the Pole King Haakon VII Vidde in honour of King Haakon VII of Norway. Robert Falcon Scott had also returned to Antarctica with his second expedition, the Terra Nova Expedition, in a race against Amundsen to the Pole. Scott and four other men reached the South Pole on January 17, 1912, thirty-four days after Amundsen. On the return trip, Scott and his four companions all died of starvation and extreme cold.

93.(2) One of the biggest challenges that the Japanese government face today is its aging population and negative population growth rate. 22.9 percent of the Japanese population is above the age of 65 while Japan's total fertility is the 5th lowest in the world.

With only about 15 percent of its land being arable, Japan imports about 60 percent of grain and fodder crops from other countries, and relies on imports for most of its meat products.

Japan is also the largest market for EU and third largest market for US' agricultural exports.

With its lack of natural resources, Japan rely on the imports of commodities such as fuels, foodstuffs, chemical, textiles and raw materials from various countries for its industrial sectors.

94.(3) Ionosphere includes thermosphere and exosphere .

95.(3) Yarlung Tsangpo or Yarlung River is a water course that originates at Tamlung Tso lake in western Tibet, southeast of Mount Kailash and Lake Manasarovar. It later forms the South Tibet Valley and Yarlung Tsangpo Grand Canyon, before passing through the state of Arunachal Pradesh, India, where it is known as the Dihang. Downstream from Arunachal Pradesh the river becomes wider and at this point is called the Brahmaputra River.

96.(3) Guinea officially the Republic of Guinea , is a country in West Africa. Formerly known as French Guinea, it is today sometimes called Guinea-Conakry or Guinea to distinguish it from its neighbour Guinea-Bissau and the Republic of Equatorial Guinea.

Guinea's economy is largely dependent on agriculture and mineral production. It is the world's second largest producer of bauxite, and has rich deposits of diamonds and gold.

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97.(1) 2.4% land in the earth surface.

98.(2) India has lost 367 square kilometres of forest cover in the past two years. According to the India State of Forest Report, 2011, released by the Forest Survey of India (FSI) on February 7, the total forest cover in the country is now at 6,92,027 sq km. This accounts for 21.05 percent of the total geographical area of India.



#### 99.(1) Mathura Refinery (Near Delhi)

Mathura Refinery, the sixth refinery of Indian Oil was commissioned in 1982 with a capacity of 6.0 MMTPA to meet the demand of petroleum products in north western region of the country, which includes National Capital Region. Refinery is located along the Delhi-Agra National Highway about 154 KM away from Delhi.

**Digboi Refinery (Upper Assam)** The Digboi Refinery in North Eastern India is India's oldest refinery and was commissioned in 1901. Originally a part of Assam Oil Company, it became part of Indian Oil in 1981. Its original refining capacity had been 0.5 MMTPA since 1901.

#### Panipat Refinery (Near Delhi)

Panipat Refinery has doubled its refining capacity from 12 MMT/yr to 15 MMT/yr with the commissioning of its Expansion Project. Panipat Refinery is the seventh refinery of Indian Oil. It is located in the historic district of Panipat in the state of Haryana and is about 23 km from Panipat City.

#### 100.(4) Subsistence agriculture is self-sufficiency farming in which the farmers focus on growing enough food to feed themselves and their families. The typical subsistence farm has a range of crops and animals needed by the family to feed and clothe themselves during the year.

Most subsistence farmers today live in developing countries like India. Although their amount of trade as measured in cash is less than that of consumers in countries with modern complex markets, many have important trade contacts and trade items that they can produce because of their special skills or special access to resources valued in the market place.