

## NDA/NA 2015 (English Language and General Studies) Paper 2

### Part A (English Language)

**Directions** (Q. Nos. 1-9) Each of the following items has a sentence with three parts labelled as (a), (b) and (c). Read each sentence to find out whether there is any error in any part and indicate your answer. If you find no error, your response should be indicated as (d).

1. I am told (a)/John is ill (b)/ since Monday. (c)/No error (d)

**Ans.** (b) Use 'John has been ill' in place of 'John is ill' to make the syntax correct as there is a time reference, e.g. She has been ill since, last week.

2. I shall leave school (a)/as soon as (b)/ I shall find a job. (c)/ No error (d)

**Ans.** (c) Remove 'shall' from the part of the sentence to make it correct. See the syntax: sub + v<sub>1</sub>/v<sub>5</sub>.... She will leave the place as soon as she gets an accommodation.

3. He is a rich man (a)/ he is owning (b)/ a number of buildings in Bombay. (c)/No error (d)

**Ans.** (b) 'He is owning' is to be replaced by 'He owns'. 'own' is not used in progressive form, e.g. Malya owns Kingfisher Airlines.

4. We were able to make it (a)/ in spite of (b)/ a bad weather, (c)/ No error (d)

**Ans.** (d) No error

5. Neither of the two letters of credit (a)/ were useful (b)/ when he needed it. (c)/ No error (d)

**Ans.** (b) 'Neither' is followed by singular verb. So, use 'was' in place of 'were', e.g. Neither of the girls was able to call my name.

6. Little he realised (a)/ that he wouldn't live (b)/ to see his grandson married, (c)/ No error (d)

**Ans.** (c) Use 'get married' that makes the syntax correct. 'Marry' is a verb that is used in collocation, e.g. She was about to get married, so she left the job.

7. A difficult syllabus (a)/ is supposed to hurt (b)/ juvenile mind. (c)/No error (d)

**Ans.** (b) Replace 'is supposed to hurt' by 'is difficult to'. 'Hurt' is no way appropriate to use here. e.g. Crossing the Black Sea is difficult to a new swimmer.

8. The voice of sanity and patriotism (a)/ are important to dispel (b)/ the prevailing confusion, (c)/ No error (d)

**Ans.** (b) Use 'is' in place of 'are'. When two things are meant for same thing then singular verb is used, e.g. The clerk and cashier is absent today who sits on counter no.3.

9. You were going to explain (a)/ your late arrival, (b)/ isn't it? (c)/ No error (d)

**Ans.** (c) As per the rules of tag, we should use 'weren't you'. A tag takes the verb of the main sentence. Here, 'were' is the verb of the main sentence.

e.g. The boy cried loudly, didn't he?

**Directions** (Q. Nos. 10-24) Each of the following sentences has a blank space and four words or group of words given after the sentence. Select whichever word or group of words you consider most appropriate for the blank space and indicate your response accordingly.

10. Man has won his dominant position on this planet by his..... of technology.

- (a) command
- (b) emphasis
- (c) belief
- (d) stress

**Ans.** (a) Domination is shown by the use of 'command'. 'Emphasis' and 'stress' are not used to show any domination but these are used to reflect a kind of force so that statement can be conveyed strongly. Hence, these are inappropriate. 'Belief' is a set of established ideas hence it does not meet the contextual part.

11. The day was extremely hot and, in no time, my back was drenched with.....

- (a) prickly heat
- (b) perspiration
- (c) sores
- (d) fatigue

**Ans.** (b) 'Prickly heat', 'sores', 'fatigue' all are the outcome of strong heat. But, with the word 'drenched' we can't use any of them. 'Perspiration' means 'sweat' that can drench someone hence it is suitable.

12. The government is encouraging village upliftment.....in the country.

- (a) programmes
- (b) designs
- (c) talks
- (d) propaganda

**Ans.** (a) 'Propaganda' has a negative sense. Hence, it can't be used with 'encouraging'. 'Talks' and 'designs' could not stand by the actual meaning of the sentence. Also, it is not keeping up with the 'encouragement'. Hence, 'programmes' is suitable.

13. Satish was endowed.....a natural talent for music.

- (a) in
- (b) by
- (c) for
- (d) with

**Ans.** (d) 'Endowed' is followed by the preposition 'with'.

14. Mr Ghosh is very happy .....his son's excellent result.

- (a) for seeing

- (b) to see
- (c) by seeing
- (d) see

**Ans.** (b) Use infinitive 'to see' to state the cause/purpose involved.

15. Sunlight filtering ..... the stained glass window created a mosaic of colours on the floor.

- (a) in
- (b) through
- (c) at
- (d) into

**Ans.** (b) 'Filter' is followed by 'through'.

e.g. Water can be filtered through the cloth easily.

16. Are you feeling doubtful.....your decision?

- (a) about
- (b) upon
- (c) at
- (d) for

**Ans.** (a) 'Doubtful' is followed by the preposition 'about'.

e.g. He was doubtful about my arrival before time.

17. I want to study Geology now for I.....Zoology for the last three years.

- (a) am studying
- (b) have been studying
- (c) had studied
- (d) had been studying

**Ans.** (b) When time reference has been given then Present Perfect Continuous is used. So, 'have been studying' is appropriate.

18. Increase in storage facilities has made it possible to store goods at places ..... to people all over the country.

- (a) safe
- (b) easy
- (c) proper
- (d) convenient

**Ans.** (d) 'Safe', 'easy', 'proper' all are nearly appropriate to be used. But, 'convenient' alone is enough to convey the essence of all the words given in the option. Hence, (d) is suitable.

19. To say that we were surprised at the cleverness of the child is an understatement; we were really.....

- (a) annoyed
- (b) astounded

(c) flattered

(d) confused

(b) Sentence gives the idea of cunningness of a child that is really a surprise. Hence, we should provide such a word in the blank that gives the idea of the surprise. The only suitable word for the purpose is 'astounded'. Hence, (b) is the right choice.

20. In spite of the old woman's repeated entreaties, he remained.....

(a) ashamed

(b) docile

(c) indifferent

(d) lethargic

**Ans.** (c) 'Indifferent' means 'not being interested' and this meets the sense of the sentence which involves repeated requests. Rest options are out of context.

21. There was .....competition for electoral seats.

(a) diligent

(b) rapid

(c) cut-throat

(d) sparse

**Ans.** (c) 'Diligent' means 'a hard-worker' which is not appropriate, 'rapid' has no contextual sync in the sentence. 'Sparse' has also nothing to do with the sentence. Hence, 'cut-throat' is suitable that shows the height of the competition.

22. The cricket team.....mainly of State players.

(a) composed

(b) consist

(c) made with

(d) comprises

**Ans.** (d) 'Comprises' gives the proper sense to the sentence. Rest of the options need preposition with them.

23. His love for money is the only.....that drives him to work so hard.

(a) programme

(b) plan

(c) reason

(d) greed

**Ans.** (c) The sentence demands an explanation for the cause can be fulfilled by supplying the word 'reason' which indicates the explanation for his working hard. 'Plan', 'programme' are not in the context. 'Greed' lacks sync with the sentence as a thing can't be termed both, 'love' and 'greed' for a same attribute.

24. According to ..... sources, the Chief Minister not consult his Cabinet Members on this issue.

- (a) intelligent
- (b) simple
- (c) reliable
- (d) fundamental

**Ans.** (c) When something is confidential and of utmost importance then sources is said to be 'reliable'. 'Simple' and 'fundamental' don't meet context of the sentence. 'Intelligent' also doesn't show a sync to the sentence.

**Directions** (Q. Nos. 25-34) In this section, look at the underlined part of each sentence. Below each sentence are given three possible substitutions for the underlined part. If one of them (a), (b) or (c) is better than the underlined part, indicate your response against the corresponding letter (a), (b) or (c). If none of the substitutions improves the sentence, indicate (d) as your response. Thus, a 'No improvement' response will signified by the letter (d).

25. Had she been hungry, she would have devoured the whole lot of it.

- (a) Unless she had been hungry
- (b) However she had been hungry
- (c) As if she had been hungry
- (d) No improvement

**Ans.**(d) No improvement

26. Until you don't finish the work, you won't be given leave.

- (a) Until you must finish
- (b) Until finishing
- (c) Until you finish
- (d) No improvement

**Ans.** (c) Use 'until you finish'. Remember, not to use 'don't' when 'until' and 'unless' are used in the sentence.

e.g. A labourer will not be paid until he finishes the work.

27. The names of the defaulters have been cut off the register.

- (a) cut out
- (b) struck out
- (c) struck off
- (d) No improvement

**Ans.** (c) The correct verb to be used here is 'strike off'. 'Cut off' means 'to cut short' or 'to terminate supply' which is not suitable. So, 'struck off' is appropriate usage.

e.g. The principal decided to strike off the names of those who have not paid their fees.

28. This is a matter I'd rather not talk about.

- (a) of which I'd rather not talk about
- (b) I rather not talk about
- (c) than I'd rather not talk about
- (d) No improvement

**Ans.** (a) We need a sentence connector. So, 'of which' is the suitable usage here as a proper connector.  
e.g. This is the place for which I have an appreciation always.

29. Only when you left I did sleep.

- (a) I slept
- (b) did I sleep
- (c) had I slept
- (d) No improvement

**Ans.**(b)'Only when ...' is an adverbial phrase here and for this, we have to use inversion form of the verb.  
So, 'did I sleep' is correct.  
e.g. Only when he came to me, did I surrender.

30. I will be happy if you will buy me apples.

- (a) buy
- (b) bought
- (c) will be buying
- (d) No improvement

**Ans.** (a) Use 'buy' as the conditional clause needs to be in Simple Present Tense.  
e.g. If I go there, I shall see the beautiful mountains.

31. After I saved some money, I shall go abroad.

- (a) shall save
- (b) should have saved
- (c) have saved
- (d) No improvement

**Ans.** (c) 'Saved' should be replaced with 'have saved' to show the consequence of the action.

32. Can you arrange the car to be ready this evening?

- (a) arrange with the car
- (b) arrange for the car
- (c) arrange that the car
- (d) No improvement

**Ans.** (b) 'Arrange for the car' is suitable replacement for this sentence. 'Arrange for' is idiomatic

expression.

e.g. Can he arrange for a chair to take that to station?

33. Hardly had he reached home when the telephone rang.

- (a) he had reached
- (b) did he reach
- (c) he reached
- (d) No improvement

**Ans.** (d) No improvement

34. He is likely to win the elections by the sweeping majority.

- (a) with the sweeping majority
- (b) in sweeping majority
- (c) by a sweeping majority
- (d) No improvement

**Ans.** (c)

Use 'by a sweeping majority' which is an idiomatic expression to make the syntax correct.

e.g. BJP is likely to win the next polls by a sweeping majority.

**Directions** (Q. Nos. 35-39) Each of the following items consists of a sentence with a capital word followed by four words. Select the word that is nearest in meaning to the capital word and mark your response accordingly.

35. Many of his acquaintances avoid him because he is so GARRULOUS.

- (a) Unreasonable
- (b) Talkative
- (c) Quarrelsome
- (d) Proud

**Ans.** (b) 'Garrulous' as well as 'talkative' means one who talks much. So, both are synonyms.

36. He bore the pain with great FORTITUDE.

- (a) Resignation
- (b) Defiance
- (c) Indifference
- (d) Forbearance

**Ans.** (d) 'Fortitude' and 'forbearance' are synonyms as both have a meaning 'strength of mind'.

37. He gave his TACIT approval to the proposition.

- (a) Full
- (b) Loud
- (c) Clean

(d) Implied

**Ans.** (d) 'Tacit' and 'implied' are synonyms to each other as both mean understood.

**38.** In spite of hard work, the farmers could only get a MEAGRE yield.

(a) Satisfactory

(b) Scanty

(c) Plenty

(d) Normal

**Ans.** (b)

'Meagre' and 'scanty' both have a meaning less in amount'. So, these are synonyms.

**39.** He was EXHILARATED at the outcome of the election results.

(a) Satisfied

(b) Surprised

(c) Disappointed

(d) Overjoyed

**Ans.** (d) 'Exhilarated' and 'overjoyed' are the similar words as both have same meaning 'extremely happy.'

**Directions** (Q. Nos. 40-44) Each of the following items consists of a sentence with an underlined word followed by four words. Select the word that is opposite in meaning to the underlined word and mark your response accordingly.

**40.** He CONCEALED his thoughts very cleverly.

(a) Emphasised

(b) Expressed

(c) Affirmed

(d) Revealed

**Ans.** (d) 'Concealed' means 'to hide'. So, its antonym will be 'reveal' that has a meaning 'to disclose'.

**41.** The proposal was DENOUNCED by one and all.

(a) Renounced

(b) Recommended

(c) Announced

(d) Commanded

**Ans.** (b) 'Denounced' means 'to criticise' so, 'recommended' is antonym that means 'to praise'.

**42.** She was SKEPTICAL about the safety of the new drug.

(a) Doubtful

(b) Certain

(c) Hopeful

(d) Sanguine

**Ans.** (b) 'Skeptical' means 'doubtful' so correct antonym will be 'certain' which means 'fix or which cannot change'.

**43.** The answers to the question were COHERENT.

- (a) Relaxed
- (b) Loose
- (c) Consistent
- (d) Disconnected

**Ans.** (d) 'Coherent' means 'in connection to one another' but 'disconnected' is just opposite in meaning.

**44.** It was no ALTRUISTIC motive that prompted him to help her.

- (a) Selfish
- (b) Inhuman
- (c) Brutal
- (d) Wicked

**Ans.** (a) 'Altruistic' means 'not selfish' so its correct antonym is 'selfish'.

**Directions** (Q. Nos. 45-50) Each of the following items consists of a sentence the parts of which have been jumbled. These parts have been labelled P, Q, R and S. Given below each sentence are four sequences namely (a), (b), (c) and (d). You are required to re-arrange the jumbled parts of the sentence and select the correct sequence.

**45.** His uncle for success in life, always advised his son, who was a self – made man  
(P) (Q) (R)  
to depend on his own efforts  
(S)

The proper sequence should be

- (a) SQPR
- (b) RQSP
- (c) PRSQ
- (d) OPSR

(b) RQSP is the correct sequence.

**46.** The doctor did not like the behaviour of the patients who was very competent in his profession  
(P) (Q)  
when they talked at length about their problems  
(R) (S)

The proper sequence should be

- (a) RPSQ
- (b) SRPQ
- (c) QPRS
- (d) PRQS

**Ans.** (c) QPRS is the correct sequence.

47. From leadership in culture (P) in military situations and in face – to – face small groups (Q)

leadership has wide range of expressions (R) to leadership in politics (S)

The proper sequence should be

- (a) RSQP
- (b) PQRS
- (c) RPSQ
- (d) SQRP

**Ans.** (c) RPSQ is the correct sequence.

48. He sat glancing occasionally (P) peering through the window (Q) at the figure of the old woman (R)

until he was chilled with the cold (S)

The proper sequence should be

- (a) PSRQ
- (b) QRPS
- (c) SPRQ
- (d) PRSQ

**Ans.** (b) QRPS is the correct sequence.

49. After the earthquake tremors, the TV showed a haggard man shaking his fist at the sky (P)

(P) clambering over the ruins (Q) and collapsing with a howl of revolt (R) of his house and factory (S)

The proper sequence should be

- (a) SRQP
- (b) QSPR
- (c) PQRS
- (d) RPSQ

**Ans.** (b) QSPR is the correct sequence.

50. Everyone acknowledges (P) when he considers the case calmly (Q) who knows you (R) that you have been wronged (S)

The proper sequence should be

- (a) RSQP
- (b) RPSQ
- (c) PQRS
- (d) QRPS

**Ans.** (b) RPSQ is the correct sequence.

## Part B (General Studies)

51. Which one of the following pairs of properties of typical air masses is correct?

	Air Mass	Source Region
(a)	Maritime Equatorial	Warm oceans in the equatorial
(b)	Maritime Tropical	Warm oceans in the tropical zone
(c)	Continental Tropical	Less warm oceans in the tropical
(d)	Continental Polar	Moist oceans in the polar zone

**Ans.** (a) Maritime Equatorial air mass originates from warm oceans in the equatorial zone. Maritime Tropical originates from the warm water and Gulf of Mexico where heat and moisture are transferred to the overlying air from the water below. Continental tropical is dry air mass formed over land in the area close to equator. Continental polar is cold, dry stable air mass originating over land surface of Canada and Alaska.

52. The symbol of the element 'Tungsten' is

- (a) Ta
- (b) W
- (c) Tl
- (d) Tc

**Ans.** (b) 'Ta' is the symbol for element 'Tantalum'.  
'W' is the symbol for element 'Tungsten'.  
'Tl' is the symbol for element 'Thallium'.  
'Tc' is the symbol for element 'Technetium'.

53. In Egypt, ancient mummies can be found to have their arteries intact due to well preserved

- (a) mineralised blood
- (b) fibroblasts fibre
- (c) elastic fibre
- (d) brown fat

**Ans.** (c) Elastic fibres are formed of elastin protein, which is probably the most resistant of all body proteins to chemical changes.

Thousands of years old 'mummies' including those found in Egypt still have their arteries intact due to well preserved elastin fibres.

54. Which one of the following statements is correct?

- (a) The image formed by a concave mirror for an object lying at infinity is at the principal focus, highly diminished, real and inverted
- (b) A ray of light parallel to the principal axis after reflection from a concave mirror appears to diverge from the principal focus of the mirror
- (c) The focal length of a spherical mirror is double of its radius of curvature

(d) A ray of light travelling from a rarer medium to a denser medium bends away from the normal

**Ans.** (a) When an object is placed at infinity in front of a concave mirror it will form a highly diminished, real and inverted image at focus of the mirror.

55. Which one of the following statements is correct?

(a) Rutherford's alpha-particle scattering experiment led to the discovery of electron

(b) J J Thomson suggested that the nucleus of an atom contains protons

(c) The atomic number of an element is the same as the number of protons in the nucleus of its atom

(d) The mass number of an atom is equal to the number of electrons in its shells

**Ans.** (c) Rutherford's  $\alpha$ -scattering experiment led to the discovery of nucleus and hence structure of atoms. J J Thomson's cathode ray tube experiment led to the discovery of electrons. Atomic number of an element is equal to the number of protons in the nucleus of an atom. Mass number of an atom is equal to the sum of total number of neutrons and protons in the nucleus.

56. Which one of the following statements is not correct?

(a) Application of lime makes the soil acidic

(b) High acidity in soil is typical of humid climate

(c) Increasing soil acidity results in declining soil fertility

(d) Arid climate is characterised by alkaline soil

**Ans.** (a) The nature of lime is basic. So, when it is added to the soil, it makes it basic. If it is added to the acidic soil, then its acidity is neutralised by adding lime water.

57. The alkali metals have relatively low melting point. Which one of the following alkali metals is expected to have the highest melting point?

(a) Li

(b) Na

(c) K

(d) Rb

**Ans.** (a) On moving from Li to Rb, size of atom increases so interatomic interaction becomes weak resulting in low melting point. Among alkali metals, Li have the highest melting point.

58. Which one of the following is useful in paper manufacturing industry?

(a) Fibrous plants

(b) Orchids

(c) Non-flowering plants

(d) Plants growing in high altitude

**Ans.** (a) Fibrous plants are traditionally used to make paper in the paper manufacturing industry. These are also used to make cloth, rope, etc.

59. Which one of the following statements is not correct?

(a) In steady flow of a liquid, the velocity of liquid particles reaching at a particular point is the same at

all points

(b) Steady flow is also called streamlined flow

(c) In steady flow, each particle may not follow the same path as taken by a previous particle passing through that point

(d) Two streamlines cannot intersect each other

**Ans.** (c) In steady flow, the velocity of fluid particles reaching at a particular point is the same at all times. Thus, each particle follows the same path as taken by a previous particle passing through that point. Therefore, two streamlines never intersect each other.

**60.** According to the Geo-scientists, the shape of the Earth is

1. round
2. Spherical
3. close to that of a sphere
4. an oblate ellipsoid

Select the correct answer using the code given below :

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

**Ans.** (d) According to the Geo-scientists, the shape of the Earth can be considered as close to that of sphere and also as an oblate ellipsoid termed as Geoid.

**61.** The word 'Secular' was inserted into the Constitution of India by

- (a) 44th Amendment Act
- (b) 52nd Amendment Act
- (c) 42nd Amendment Act
- (d) 34th Amendment Act

**Ans.** (c) **44th Amendment Act** was enacted to nullify some of the amendments made by 42nd Amendment Act, 1976. Most of the changes were with regard to declaration on emergency under Article '352'. Right to property was deleted from the list of Fundamental Right. It is now only a legal right under the constitution.

**52nd Amendment Act** added Anti-defection law and the 10th schedule to Indian Constitution.

**34th Amendment Act** added 9th schedule to Indian Constitution.

**62.** Which one of the following is not correct in the context of balance of payments of India during 2013-14?

- (a) India's exports were less than its imports.
- (b) Trade balance was negative.
- (c) Net invisibles were positive.
- (d) Capital account balance was negative.

**Ans.** (d) According to the Economic Survey 2013-14, the India's exports were less than imports. Trade balance was negative, trade balance is the calculation of a country's exports minus its imports. Net

invisibles refer to the services and products than do not result in the transfer of any physical object, it was positive in 2013-14. Capital account is the net result of public and private international investments following in and out of a country, which were positive in 2013-14.

63. Which one of the following continents accounts for the maximum share in exports from India?

- (a) Asia
- (b) Europe
- (c) Africa
- (d) North America

**Ans.** (a) Share of export from India in 2013-14

Asia	—	49.6 %
Europe	—	18.6 %
America	—	17.3 %
Africa	—	9.9 %

64. The two provisions of the Constitution of India that most clearly express the power of judicial review are

- (a) Article-21 and Article-44
- (b) Article-32 and Article-226
- (c) Article-44 and Article-152
- (d) Article-17 and Article-143

**Ans.** (b) The power of judiciary to review and determine the validity of a law or an order may be described as the powers of judicial review. It means that Constitution is the supreme law of the land and any law consistent therewith is void through judicial review.

65. Which one of the following statements about Subsidiary Alliance devised by Lord Wellesley in the year 1728 is not correct?

- (a) The territories entering into a subsidiary alliance with the British were responsible for their own internal and external protection
  - (b) In the territory of the ally, a British armed contingent would be stationed
  - (c) The ally would have to provide the resources maintaining the British contingent in the territory
  - (d) The permission of the British was needed for the ally enter into agreements with other rulers
- (a) The Subsidiary Alliance system was used by Wellesley to bring Indian states within the orbit of British power. The system served the double purpose of asserting British supremacy in India and at the same time of saving India from the menace of Napoleon. The system played a very important part in the expansion of the Company's dominions and many new territories were added to the Company's possession.

66. Who among the following was associated with the Mughal court as a physician to Prince Dara Shukoh?

- (a) Hakim Afzal Khan
- (b) Ibn Battuta
- (c) Francois Bernier

(d) Duarte Barbosa

**Ans.** (c) Francois Bernier was a French physician and traveller. He was born at Joue-Etiau in Anjou. He was brie personal physician to Prince Dara Shikoh (28 October 1615—30 August 1659), the elder son of Shah Jabs and after Dara Shikoh's fall, he was attached to t court of the Emperor Aurangzeb.

67. During the Eleventh Five Year Plan, agriculture sect in India witnessed a growth rate of 3.3% per annum which is higher than 2.4% per annum in the previous Five Year Plan. This is largely due to better performance of

- (a) crops and livestock
- (b) oilseeds and fibres
- (c) fishing and oilseeds
- (d) fibres and fishing

**Ans.** (a) 11th Plan had some success in reversing the declaration of agricultural growth witnessed during the 9th and 10th Plan but food inflation still remains major concern. The growth in agriculture in the 11th Plan is likely to be around 3.2% year, which is high than 10th Plan growth rate but lower than the target (4.0%) for 11th Plan.

68. An emergency under Article-352 of the Constitution India can be declared only during

- (a) war, external aggression or internal disturbance
  - (b) war, external aggression or armed rebellion
  - (c) failure of constitutional machinery in the State
  - (d) financial instability in the country
- (b) When a national emergency is declared on the ground of war or external aggression, it is called 'External Emergency' and when it is declared on the ground of armed rebellion, it is termed as 'Internal Emergency'. It should be noted here that the President can declare a national emergency even before that actual occurrence of war or external aggression or armed rebellion, if he is satisfied that there is an imminent danger.

69. Which of the following statements about the livestock sector in India is/are correct?

1. Livestock contributed about 25% of gross value added in agriculture.
2. It provides self employment to a large segment of population.
3. Rapid growth of livestock sector can be egalitarian and inclusive.

Select the correct answer using the code given below:

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

**Ans.** (d) Livestock production performance has been more impressive than that of food grain production. Milk, egg, meat, and fish showed impressive growth rates of 5 to 10%. The minimum targeted growth

rate for attaining self sufficiency in milk, fish, meat and egg by 2001 AD are 5.54, 6.25 and 5.54% per annum respectively. It provides alternate source of income to small and marginal farmers. Hence, livestock growth leads to egalitarian and inclusive growth.

70. Which one of the following statements about Khilafat Movement is not correct?

- (a) The Khilafat Movement demanded that the Khalifa must retain control over Muslim holy places.
- (b) The radical trend in the Khilafat Movement was represented by younger leaders like Muhammad Ali, Shaukat Ali, and Maulana Azad.
- (c) Indian Muslim leaders used Khilafat as a symbol that could unite the Indian Muslim community.
- (d) The Delhi conference of the Central Khilafat Committee in 1920 decided to launch a massive Non-Cooperation Movement.

**Ans.** (d) The leaders of the Khilafat Movement joined hands with Indian National Congress for the upcoming Non-cooperation Movement. Again March 19, 1920 was observed as Khilafat Day and following that there was an all party conference in June 1920 at Allahabad. The agenda of the Non-cooperation Movement was finalised.

71. A brass ball is tied to a thin wire and swung so as to move uniformly in a horizontal circle. Which of the following statements in this regard is/are true?

- 1. The ball moves with constant velocity.
- 2. The ball moves with constant speed.
- 3. The ball moves with constant acceleration.
- 4. The magnitude of the acceleration of the ball is constant.

Select the correct answer using the code given below:

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

**Ans.** (d) Since, the direction of the ball changes continuously during motion in horizontal circle, so the magnitude of velocity (i.e. speed) and magnitude of acceleration remains constant. But their direction changes continuously.

72. Two long wires each carrying a DC current in the same direction are placed close to each other.

Which one of the following statements is correct?

- (a) The wires will attract each other
- (b) The wires will repel each other
- (c) There will be no force between the wires
- (d) There will be a force between the wires only at the moment when the current is switched ON or OFF

**Ans.** (a) When two wires carries current  $I_1$  and  $I_2$  in the same direction and separated by a distance  $d$ . The force of attraction between the wires in

$$\frac{F}{L} = \frac{\mu_0}{2\pi d} I_1 I_2$$

where, L is length of the wires.

73. The first Indian satellite, Aryabhata, was launched in the year

- (a) 1972
- (b) 1975
- (c) 1976
- (d) 1979

**Ans.** (b) Aryabhata Satellite was launched on 19th April 1975, with weight of 360 kg. It was launched by Soviet Intercosmos rocket. The objectives of this project were to indigenously design and fabricate a space-worthy satellite system and evaluate its performance in orbit.

74. Which one of the following sea routes is the shortest from point to point?

- (a) Kolkata to Yangon
- (b) Kolkata to Chennai
- (c) Chennai to Port Blair
- (d) Mumbai to Colombo

**Ans.** (c) Distance between Kolkata to Chennai is 890 nautical miles. Distance between Kolkata to Yangon is 975 nautical miles. Distance between Chennai to Port Blair is 794 nautical miles. Distance between Mumbai to Colombo is 943 nautical miles.

75. Which one of the following is not a Green house gas?

- (a) Water vapours
- (b) Methane
- (c) Ozone
- (d) Carbon monoxide

**Ans.** (d) Carbon monoxide (CO) is not a green house gas. It is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. Without these gases the average temperature of Earth's surface would be about  $-18^{\circ}\text{C}$ . There are water vapour,  $\text{CO}_2$ ,  $\text{CH}_4$ , nitric oxide and ozone. CO is an oxide of carbon which originates from burning of fossil fuels and cause air pollution.

76. Muscle fatigues due to the accumulation of

- (a) cholesterol
- (b) lactic acid
- (c) linoleic acid
- (d) triglycerides

(b) Muscle fatigue is due to the accumulation of lactic acid. Lactic acid is formed and accumulated in the muscle under conditions of high energy demand, rapid fluctuations of the energy requirement and insufficient supply of oxygen.

77. The absolute zero, i.e. temperature below which is not achievable, is about

- (a)  $0^{\circ}\text{C}$
- (b)  $-273\text{ K}$
- (c)  $-273^{\circ}\text{C}$
- (d)  $-300^{\circ}\text{C}$

**Ans.** (c) Absolute zero is a temperature at which a thermodynamic system has the lowest internal energy. It corresponds to  $-273.15^{\circ}\text{C}$  on the Celsius scale and to  $-459.67^{\circ}\text{F}$  on Fahrenheit scale.

78. Lightning conductors are used to protect building from lightning strikes. Which of the following statements is/are true about lightning conductors?

1. Lightning conductors create an electric field at its top so that lightning strikes it preferentially.
2. Lightning conductors reduce the effect of the strike by uniformly distributing the charge (current) over the surface of the building.
3. Lightning conductors take all charge (current) to deep down in the Earth.
4. Lightning conductors must be installed at a place taller than the building.

Select the correct answer using the code given below :

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

**Ans.** (b) Since, lightning conductors are at lower potential (as its wire is hurried deep inside the Earth), it attracts lightning (which is at higher potential) and send them to deep down the Earth. Lightning conductor must be installed at a place taller than the building.

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

	<b>List I</b> (Manufacturing Site)		<b>List II</b> (Industry)
A.	Ludhiana	1.	Auto parts
B.	Kanpur	2.	Woollen garments
C.	Varanasi	3.	Leather
D.	Vijayawada	4.	Handloom

Code

- |     | A | B | C | D |     | A | B | C | D |
|-----|---|---|---|---|-----|---|---|---|---|
| (a) | 1 | 4 | 3 | 2 | (b) | 2 | 3 | 4 | 1 |
| (c) |   | 4 | 3 | 1 | (d) | 1 | 3 | 4 | 2 |

**Ans.**

(b) Ludhiana is famous all over India for its woolen sweaters and cotton T-shirts. Most of the top Indian woolen apparel brands are based in Ludhiana. Kanpur is renowned for its leather industries, the largest

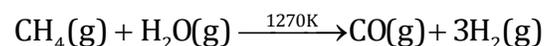
centre of the industry is in Jajmau suburb of Kanpur. Varanasi is famous for handloom works and Bari bazaar is famous for Banarasi Silk Sarees. Vijyawada is well known as the auto parts capital in India, the Auto Nagar industrial estate, also known as Jawaharlal Nehru Auto Nagar Estate. It is an industrial park dedicated to the automobile industry and one of the largest of its kind in Asia.

80. Which one of the following is not a sea port?

- (a) Paradeep
- (b) Haldia
- (c) Diamond Harbour
- (d) Dhamra

(c) Paradeep Port is one of the Major Ports of India serving the Eastern and Central parts of the country. It is located in Odisha. Haldia is a major riverport and industrial belt located in Kolkata near the mouth of the Hooghly river. Diamond Harbour is also located Kolkata but not a port. The area being in the proximity of the Bay of Bengal, there is scope for development ports and shipping activity. The Dhamra Port is a major newly developed port in Bhadrak district of Odisha on the shore of the Bay of Bengal. The agreement develop the port was signed in April 1998.

81. Consider the following reaction:



In the reaction given above, the mixture of CO and H<sub>2</sub>

- (a) natural gas
- (b) water gas
- (c) producer gas
- (d) industrial gas

**Ans.** (b)  $\text{CH}_4(\text{g}) + \text{H}_2\text{O}(\text{g}) \longrightarrow \text{CO}(\text{g}) + 3\text{H}_2(\text{g})$

The mixture of CO and H<sub>2</sub> is called 'water gas' as this mixture of CO and H<sub>2</sub> is used for the synthesis methanol and a number of hydrocarbon.

82. Living things are grouped into subgroups like plant kingdom/ animal kingdom. Which one of the following is not correct for animal kingdom?

- (a) Cannot make their own food
- (b) Body contains cellulose
- (c) Do not have chlorophyll
- (d) Migrate from one place to another

**Ans.** (b) Living beings of animal kingdom lack cellulose in their cells of the body while plants have rigid cell wall that composed of cellulose.

83. The silvering in thermos flasks is done to avoid the transfer by

- (a) convection
- (b) conduction

- (c) radiation
- (d) Both (a) and (b)

**Ans.** (c) The silvering of inner wall of a thermo flask is done prevent heat transfer through radiation.

**84.** The Manas National Park is situated in the State of

- (a) Madhya Pradesh
- (b) Jharkhand
- (c) Assam
- (d) West Bengal

**Ans.** (c) The Manas National Park is situated in the state Assam. It is UNESCO Natural World Heritage Site. It is mainly a project to harbour elephant, wild buffalo, tiger and rhino. It is one of the famous biosphere reserves in India. It is also a project tiger reserve.

**85.** Addition of gypsum to cement

- (a) reduces setting time of cement
- (b) produces very light colour cement
- (c) increases setting time of cement
- (d) shining surface is formed

**Ans.** (c) The purpose of adding gypsum is only to slow down the process of setting of the cement so that it gets sufficiently hardened.

**86.** Conservation of momentum in a collision between particles can be understood on the basis of

- (a) Newton's first law of motion
- (b) Newton's second law of motion
- (c) Both Newton's second law motion and Newton's third law of motion
- (d) Conservation of energy

**Ans.** (c) Newton's second law states that rate of change of momentum is proportional to the force applied and Newton's third law also states about the action and reaction forces. Thus, we can say that principle of conservation can be understood by both of these laws.

**87.** Which one of the following statements is not correct?

- (a) Temperature decrease from the equator to poles
- (b) Temperatures in equatorial regions change substantially from January to July
- (c) Large land masses located in the sub-arctic and arctic zones develop centres of extremely low temperatures in winter
- (d) Highlands are always colder than surrounding lowlands

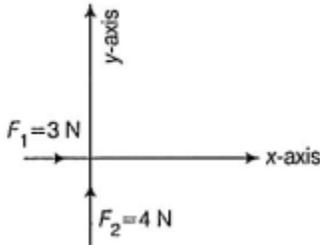
**Ans.** (b) The decrease of an atmospheric variable with height, the variable being temperature unless otherwise specified. As you rise in altitude the air decreases in density, denser air can hold more heat energy when it is warmed by the Sun, while lower density air cannot retain as much heat energy.

The difference in the distance from the sun between the highlands and lowlands is relatively miniscule compared to the distance of the Earth to the sun, any difference in energy in that distance is negligible.

88. To weld metals together, high temperature is required. Such a high temperature is obtained by burning
- (a) acetylene in oxygen
  - (b) LPG in oxygen
  - (c) methane in oxygen
  - (d) acetylene in nitrogen

**Ans.** (a) To weld metals together, high temperature is obtained by burning acetylene in oxygen.

89. Two forces, one of 3 newton and another of 4 newton are applied on a standard 1 kg body, placed on a horizontal and frictionless surface, simultaneously along the x-axis and the y-axis, respectively, as shown below:



The magnitude of the resultant acceleration is

- (a)  $7\text{ m/s}^2$
- (b)  $1\text{ m/s}^2$
- (c)  $5\text{ m/s}^2$
- (d)  $\sqrt{7}\text{ m/s}^2$

**Ans.** (c) As two forces are perpendicular to each other, so resultant force is given by

$$F_{\text{net}} = \sqrt{F_1^2 + F_2^2} = \sqrt{(3)^2 + (4)^2} = \sqrt{25} = 5\text{ N}$$

Now, from second law of Newton

$$F = ma \Rightarrow a = \frac{F}{m} = \frac{5}{1} = 5\text{ m/s}^2$$

90. Magnetic meridian is an imaginary

- (a) line along North-South
- (b) point
- (c) vertical plane
- (d) horizontal plane

**Ans.** (c) The vertical plane passing through the axis of a freely suspended magnet is called magnetic meridian.

91. An upfold in rock is

- (a) graben
- (b) horse

(c) anticline

(d) syncline

**Ans.** (c) An anticline is a fold that arches up as both sides of the rock are pushed inward.

A syncline is a fold that sinks down as both sides of the rock are pushed inward. A graben is a fault which is produced when tensional stresses result in the subsidence of a block of rock. On a large scale these features are known as rift valleys. Horse is a latitude which is either of two belts or regions in the neighborhood of  $30^\circ$  N and  $30^\circ$  S latitude characterised by high pressure, calms and high variable winds.

**92.** Which one of the following gases is found in highest quantity in Exosphere?

(a) Hydrogen

(b) Helium

(c) Nitrogen

(d) Oxygen

**Ans.** (a) The exosphere the highest layer, is extremely thin and is where the atmosphere merges into outer space. It is mainly composed of very widely dispersed particles of hydrogen and some amount of helium.

**93.** In blood, platelets are required for

(a) transporting oxygen

(b) transporting carbon dioxide

(c) initiating blood clotting

(d) initiating degradation of urea

**Ans.** (c) In blood, platelets are required for blood coagulation (clotting and prevention of bleeding) at bleeding site in the body of animals. The normal platelet count ranges between 150000 and 450000 per microlitre (one millionth of a litre).

**94.** In SI unit of force, 'Newton' (N) is given by (where 'm' stands for 'metre' and 's' stands for 'second')

(a)  $1 \text{ N} = 1 \text{ kg/ms}^2$

(b)  $1 \text{ N} = 1 \text{ kg-m/s}^2$

(c)  $1 \text{ N} = 1 \text{ kg-s}^2/\text{m}$

(d)  $1 \text{ N} = 1 \text{ kg-m}^2$

**Ans.** (b) As we know,  $F = ma$

When mass (m) is taken as 1 kg and acceleration (a) is taken as  $1 \text{ m/s}^2$  the force will be 1N.

So,  $1 \text{ N} = 1 \text{ kg-m/s}^2$

**95.** The acceleration due to gravity 'g' for objects on or near the surface of Earth is related to the universal gravitational constant 'G' as ('M' is the mass of the Earth and 'R' is its radius)

(a)  $G = \frac{M}{R^2}$

(b)  $g = G \frac{M}{R^2}$

$$(c) M = \frac{gG}{R^2}$$

$$(d) R = \frac{gG}{M^2}$$

**Ans.** (b) The acceleration due to gravity can be derived from law of gravitation, i.e. Gravitational force between mass of Earth (M) and a body of mass (m) is given by

$$F = \frac{GMm}{R^2} \quad [R = \text{Radius of Earth}] \dots(i)$$

Again, we know Earth attracts anybody with the force

$$F = m \times g \quad \dots(ii)$$

From Eqs. (i) and (ii), we get

$$\frac{GMm}{R^2} = mg \Rightarrow g = \frac{GM}{R^2}$$

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

	<b>List I (Low-Latitude Climate)</b>		<b>List II (Characteristic)</b>
A.	Wet Equatorial	1.	Uniform temperatures, mean near 27°C
B.	Monsoon and trade wind coastal	2.	Marked temperature cycle with very high temperature before the rainy season
C.	Wet-dry tropical	3.	Temperatures show an annual cycle with high temperature in the high-Sun season
D.	Dry tropical	4.	Strong temperature cycle, with intense temperature during high-Sun season

**Code**

	A	B	C	D		A	B	C	D
(a)	2	3	4	1	(b)	1	2	3	4
(c)	2	4	3	1	(d)	1	3	2	4

**Ans.** (b) The wet equatorial climate is characterised by a dominance of the Intertropical Convergence Zone (ITC) and uniform very warm temperatures in all seasons. These regions received ample precipitation, when the ITC is nearby then it receives heaviest precipitation.

**Monsoon and trade wind coastal climates** are characterised by heavy rainfall with strong seasonal patterns and a larger temperature range than the wet equatorial climate

**The wet-dry tropical climate** is characterised by a warm climate but with a more marked temperature range. During the high sun season, proximity to the ITC brings heavy rains and during the cooler period, the subtropical high pressure cell produces very dry conditions.

**The dry tropical climate** is dominated by the subtropical high-pressure cell. It experiences very low precipitation and intense daytime heating under predominantly clear skies and includes many of the world's great deserts.

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

	<b>List I (Element)</b>		<b>List II (Use)</b>
A.	Li	1.	Time keeper in atomic clocks

B.	Na	2.	Batteries
C.	K	3.	Transfer of nerve impulses
D.	Cs	4.	Control of the water content in the blood

**Code**

	A	B	C	D		A	B	C	D
(a)	2	3	4	1	(b)	1	2	3	4
(c)	2	4	3	1	(d)	1	3	2	4

**Ans.** A. Lithium (Li) is used in batteries and is widely known as Lithium Batteries. These are disposable and can produce 1.5-3.7 V.

B. Sodium (Na) is used in transfer of nerve impulse. Sodium ion moves inside the membrane when a stimulus reaches a resting neuron and at complete depolarisation, action potential is created.

C. Potassium (K) is available in fruits and vegetables and sodium (Na) is available in salts. Eating salt raises amount of sodium which reduces the ability of kidney, to remove water whereas potassium helps kidney to work efficiently in retaining water.

D. Caesium (Cs) atomic clocks are the most accurate time keeper. These are the devices that contain a 'pendulum' of atoms that are excited into resonance by microwave radiation. Definition of 'SI' unit of time is based on these clocks.

**98.** Which one of the following is not a place of action in human body for the malaria parasite Plasmodium?

- (a) Liver
- (b) Kidney
- (c) Red blood cell
- (d) Brain

**Ans.** (b) Malarial parasite Plasmodium affects several body parts. In early stages liver and red blood cells get affected. Later, malaria mostly affect liver and spleen causing hepatomagaly and splenomagaly. Also in advance cases brain get affected causing cerebral malaria. This parasite does not affect kidney.

**99.** The loudness of sound is related to

- (a) its frequency
- (b) its amplitude
- (c) its speed
- (d) its pitch

**Ans.** (b) The amplitude of a sound wave determines its loudness or volume. A larger amplitude means a louder sound, and a smaller amplitude means a softer sound.

**100.** X-rays are electromagnetic radiation whose wavelengths are of the order of

- (a) 1 m
- (b)  $10^{-1}$  m
- (c)  $10^{-5}$  m

(d)  $10^{-10}$  m

**Ans.** (d) X-rays have a wavelength ranging from 0.01 to 10 nm.

$\therefore 1 \text{ nm} = 10^{-9} \text{ m}$  so,  $0.1 \text{ nm} = 10^{-10} \text{ m}$

**101.** In case of a compound microscope, which of the following statements is/are correct?

1. The focal length of the eyepiece is larger than the focal length of the objective.
2. The focal length of the eyepiece is smaller than the focal length of the objective.
3. The image produced in a normal optical microscope is real.
4. The image produced in a normal optical microscope is virtual.

Select the correct answer using the code given below:

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

**Ans.** (b) The focal length of the eyepiece is larger than the focal length of the objective and image produced in normal optical microscope is virtual. The focal length of objective is kept smaller to form a greatly enlarged image. This image is then viewed through eyepiece.

**102.** Which one of the following statements is not correct?

- (a) The radius of curvature of a concave mirror is twice its focal length
- (b) Power of a convex lens is negative and that of a concave lens is positive
- (c) The radius of curvature of a plane mirror is infinity
- (d) When a ray of light passes from an optically denser medium to an optically rarer medium, the angle of refraction is greater than the corresponding angle of incidence

**Ans.** (b) Power of lens is given by  $\frac{1}{F(\text{m})}$

For a concave lens  $F$  is negative so, power will be negative and focal length of convex lens is positive, so its power will be positive.

**103.** Identify the place that is not an oil field.

- (a) Naharkatiya
- (b) Kalol
- (c) Ledo
- (d) Ankleswar

**Ans.** (c) In Assam Naharkatiya (also Naharkatia), Rudrasagar, Moran, Hugrijan, Lakoa and Galeki have been developed by Oil India Ltd. The oil fields at Naharkatiya were given a heritage tag by the Chief Minister of Assam. Gujarat's oil wells are at Amkleswar (largest), Cambay, Kalol, Kosamba, Mehsana, Nowgam, Dholka, Lunej, Sananda, Wavel Bakal and Kathana. Ledo is a small town in, Tinsukia district of Assam. It is the easternmost broad gauge railway station in India.

104. Ammonia (NH<sub>3</sub>) obtained from different sources always has same proportion of nitrogen and hydrogen.

It proves the validity of law of

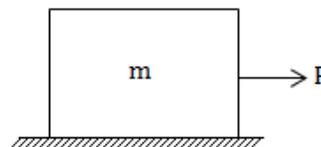
- (a) reciprocal proportion
- (b) constant proportion
- (c) multiple proportions
- (d) None of the above

**Ans.** (b) The law of definite or constant proportion was given by Joseph Proust. It states that in respective of source, a given compound always contain exactly the same elements in the same proportion by weight. Hence, it follows laws of constant proportion, not multiple and reciprocal proportion.

105. Which one of the following statements is not correct?

- (a) If the velocity and acceleration have opposite sign, the object is slowing down
- (b) If the velocity is zero at an instant, the acceleration should also be zero at that instant
- (c) If the velocity is zero for a time interval; the acceleration is zero at any instant within the time interval
- (d) If the ' position and velocity have opposite sign, the object is moving towards the origin

**Ans.** (b) If velocity of an object is zero of an instant then its acceleration may not be zero at that instant. This can be understood by analysing the motion of a block of mass  $m$  acted upon by a force  $F$  as shown in figure. Initially, the block is at rest.



$$\therefore u = 0$$

Initial acceleration of the block is  $a = \frac{F}{m} \neq 0$ .

106. The IST meridian  $82\frac{1}{2}^\circ$  E passes through a number of States in India. Which one of the following sets of States is correct in this respect?

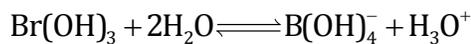
- (a) Uttarakhand, Uttar Pradesh, Chhattisgarh and Andhra Pradesh
- (b) Uttar Pradesh, Jharkhand, Chhattisgarh and Odisha
- (c) Uttarakhand, Uttar Pradesh, Madhya Pradesh and Chhattisgarh
- (d) Uttar Pradesh, Odisha, Andhra Pradesh and Chhattisgarh

**Ans.** (d) The standard meridian of India i.e.  $82.5^\circ$  E longitude passes through the states of Uttar Pradesh, Madhya Pradesh, Chhattisgarh and Odisha.

107. Boric acid is an acid because its molecule

- (a) accepts  $\text{OH}^-$  from water releasing proton
- (b) combines with proton from water molecule
- (c) contains replaceable  $\text{H}^+$  ion
- (d) gives up a proton

**Ans.** (a) Boric acid is a weak monobasic acid. It is not a protonic acid but acts as a Lewis acid by abstracting or from water.



**108.** Who among the following discovered antibiotic producing fungus from Penicillium genus?

- (a) Louis Pasteur
- (b) Sir Alexander Fleming
- (c) Stanley Prusiner
- (d) Robert Hooke

**Ans.** (b) Sir Alexander Fleming was a Scottish biologist. His best known discovery is the antibiotic penicillin obtained from the mold Penicillium notatum.

**109.** Three equal resistances when combined in series are equivalent to 90 ohm. Their equivalent resistance when combined in parallel will be

- (a) 10 ohm
- (b) 30 ohm
- (c) 270 ohm
- (d) 810 ohm

**Ans.** (a) Let each resistance is R.

According to the question,

$$R+R+R = 90 \Omega$$

$$\Rightarrow R = 30 \Omega$$

where these resistors are combined in parallel, equivalent resistance is

$$R_{\text{eq}} = \frac{R}{3} = \frac{30}{3} = 10 \Omega$$

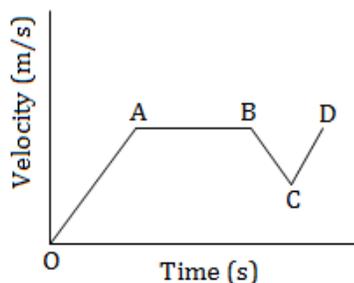
**110.** The following figure represents the velocity-time graph of a moving car on a road:

Which segment of the graph represents the retardation?

- (a) AB
- (b) BC
- (c) CD
- (d) None

**Ans.** (b)

The segment BC represents retardation as the slope of the BC curve is negative.



**111.** Which one among the following places is not an iron-ore mining area?

- (a) Badampahar
- (b) Zawar
- (c) Bailadira
- (d) Anantpur

**Ans.** (b) Odisha is the leading producer of the iron-ore, followed by Karnataka and Chattisgarh.

Badampahar is located in the district of Mayurbhanj in Odisha.

Anantapur located in Andhra Pradesh where KIOCL has secured access to prospect and mine iron ore deposits. Bailadita iron mine is situated in the Bailadila range of Dantewada district of Chattisgarh.

Zawar Mines is popularly known for its world class quality of zinc, located in the Udaipur district of Rajasthan.

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

	List I (Forest Conservation Type)		List II (Place)
<b>A.</b>	National Park	<b>1.</b>	Dudhwa
<b>B.</b>	Sanctuary	<b>2.</b>	Bhitarkanika
<b>C.</b>	Biosphere Reserve	<b>3.</b>	Chilka
<b>D.</b>	Tiger Reserve	<b>4.</b>	Nokrek

Code

	A	B	C	D		A	B	C	D
(a)	2	3	A	1	(b)	1	4	3	2
(c)	2	4	3	1	(d)	1	3	4	2

**(a) Dudhwa National Park** is situated Lakimpur-Kheri border of Nepal and Uttar Pradesh. It is better known as the 'Garden of Eden'. Presently, the park is a part of the 'Project Tiger' to conserve tigers.

**Bhitarkanika National Park** is the land of lush green mangroves, migrating birds and turtles and so on. It is unique habitat of Mangrove Forest, criss-crossed with numerous creeks and mud flats located in Kendrapara district of Odisha.

**Chilka Wildlife Sanctuary** is located at Puri in Odisha. It is one of the most visited wildlife sanctuaries in the state and home of various migratory and local birds such as Flamingo, White Bellied sea Eagle, stilt, Heron and so on.

**Nokrek Biosphere Reserve** is situated in the West Garo hills district of Meghalaya. It has a large variety of wild animals and birds. The Red Panda of this park is world famous. In 2009, UNESCO has added the reserve to its list of Biosphere Reserves. It is also a hot spot of biodiversity in Meghalaya.

**113.** The main constituent of vinegar is

- (a) acetic acid
- (b) ascorbic acid
- (c) tartaric acid
- (d) malic acid

**Ans.** (a) The main constituent of vinegar is acetic acid ( $\text{CH}_3\text{COOH}$ ). Commercially, it is produced by either fast or slow fermentation processes which involves fungus yeast.

114. White phosphorus glows in the dark due to

- (a) amorphous character
- (b) slow oxidation
- (c) high ignition temperature
- (d) good conducting property of electricity

**Ans.** (b) The slow oxidation is actually a reaction of white phosphorus with oxygen (at some partial pressure) forming short lived molecules such as  $\text{HPO}$  and  $\text{P}_2\text{O}_2$  that on stabilising emits visible light.

White phosphorus + Oxygen  $\longrightarrow$



[Short - lined intermediates]  $\longrightarrow$  [Final product]

( $\text{HPO}$ ,  $\text{P}_2\text{O}_2$ , etc.) Light-Energy (Glow)

115. Which one of the following is not an example of eukaryotic organism?

- (a) Yeast
- (b) Bacteria
- (c) Plant
- (d) Human being

**Ans.** (b) Out of all, bacteria is not an example of eukaryotic organism. These are prokaryotes with a primitive nucleus without nuclear membrane.

116. Which one of the following statements is not correct?

- (a) The kelvin scale of temperature is called the absolute scale
- (b) Visible light radiation has wavelength range of 400-700 nm
- (c) The capacity to do work is called power
- (d) The wavelength of gamma rays is less than that of X-rays

**Ans.** (c) Capacity of doing work is called energy and rate of doing work is called power. Wavelength of X-rays are in the order of  $10^{-10}\text{m}$  or  $\text{\AA}$ . Wavelength of gamma rays are in the order of  $10^{-12}\text{m}$ . Therefore, the wavelength gamma rays are less than X-rays.

117. Which one of the following is not correct in the current Indian scenario?

- (a) Life expectancy is on the increase and is about 67 y as of now.
- (b) Infant mortality rate is on the decline and has reached per thousand.
- (c) Maternal mortality rate is on the rise due to lac medical facilities.
- (d) Percentage of women giving birth in health institutions on the rise.

**Ans.** (c) Life expectancy in India:

Men		Women	
2001-05	2011-15	2001-05	2011-15
62.3	67.3	63.9	67.9

Infant Mortality rate in India:

2013	2014	2015
41	39	38

India's maternal mortality rate reduced from deaths per 100,000 live births in 2007 to 178 deaths 2012.

**118.** The Fourth Schedule to the Constitution of India deals with

- (a) provisions related to the administration of tribal area
- (b) allocation of seats in the Council of States
- (c) the Union List, the State List and the Concurrent List
- (d) recognised languages of the Union of India

**Ans.** (b) Fourth Schedule of the Constitution: Allocate seat each state of India in Rajya Sabha.

**119.** The British Officer who was a representative of Governor General and who lived in a State which not under direct British rule was called

- (a) Collector
- (b) Viceroy
- (c) Resident
- (d) Agent

**Ans.** (c) The Residencies of British India were political offices each managed by a Resident, which dealt with relations between British India and a large number princely states.

**120.** Which of the following features of the Permanent Settlement of 1793 is/are correct?

1. The Permanent Settlement vested land ownership rights in the peasants.
2. The Permanent Settlement vested land ownership rights in the Zamindars.
3. The Zamindars had to pay a fixed amount of rent by a particular date.
4. The Zamindars benefited hugely from the Permanent Settlement while the peasants suffered.

Select the correct answer using the code given below:

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

**Ans.** (b) Features of the Permanent Settlement of 1793:

1. It recognised the landlords as the proprietors of the land.
2. The landlords were given the right to transfer or sell their lands if they liked.
3. All the rights of the landlords depended on their payment of the fixed revenue on the fixed date at the treasury of the Government.
4. A fixed once for all total amount of revenue to be paid by each landlord for his zamindari to the Government.
5. The landlord was required to give to the tenant the patta. Thus the tenants got rights on their holdings and knew about the revenue to be paid.

**121.** The Vijayanagara empire received its death blow at the battle of

- (a) Talikota in 1565
- (b) Panipat in 1661
- (c) Talikota in 1665
- (d) Raichur in 1510

**Ans.** (a) The Battle of Talikota was fought between Vijaynagar Kingdom and Sultanates of Deccan on 26th January, 1565. The Vijaynagar Kingdom was defeated in the Battle and after the death of Krishna Deva Raya the fall of Vijayanagar Empire began.

**122.** The 'Basic Structure Doctrine' was enunciated by the Supreme Court during the

- (a) Golak Nath case
- (b) Maneka Gandhi case
- (c) Kesavananda Bharati case
- (d) SR Bommai case

**Ans.** (c) The Supreme Court recognised BASIC STRUCTURE concept for the first time in the historic Kesavananda Bharati case in 1973. The Supreme Court declared that Article 368 did not enable Parliament to alter the basic structure or framework of the Constitution.

**123.** Consider the following statements about the travellers who visited India:

1. Abdur Razzaq Samarqandi from Herat visited Delhi and Daulatabad.
2. Ibn Battuta provides detailed accounts of both Delhi and Daulatabad.
3. According to Francois Bernier, there was no private property in land in Mughal India.

Which of the statements given above is/are correct?

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

**Ans.** (d) Abdur Razzaq Samarqandi visited the Hampi during the reign of Deva Raya II. He was entrusted with an embassy from Persia. He arrived at Calicut in 1442; where he resided till the beginning of April 1443. Being there, he was summoned to Vijayanagara, and stayed till the 5th December 1443 in Hampi.

**124.** Which of the following statements about hill stations of colonial India is/are correct?

1. The architecture of hill stations sought to recreate the European style.
2. Hill stations were developed as sanitariums where soldiers were treated for illness.
3. Shimla became the official residence of the Commander in Chief of the Indian Army.
4. In 1864, Shimla had to be evacuated because of a typhoid epidemic.

Select the correct answer using the code given below:

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

**Ans.** (b) Indian hill stations were purposefully designed for British recreational activities and developed

as sanitariums where soldiers could be treated. Hill stations gave them feeling of temperate climate in tropical region. In 1864, Shimla was declared as the summer capital of British India.

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

	<b>List I</b> (Dynasty)		<b>List II</b> (Architecture)
<b>A.</b>	Chalukyas	<b>1.</b>	Sun Temple, Konark
<b>B.</b>	Hoysalas	<b>2.</b>	Pattadakal Temples
<b>C.</b>	Pandyas	<b>3.</b>	Kesava Temple, Somnathpur
<b>D.</b>	Eastern Gangas	<b>4.</b>	Eastern Gopura of Chidambaram temple

Code

	A	B	C	D		A	B	C	D
(a)	1	3	2	A	(b)	1	2	3	4
(c)	2	4	3	1	(d)	2	3	4	1

**Ans. (d) Pattadakal** is a small town that is renowned for its ancient temples in Karnataka. It is built by Chalukya Rulers during 7th- 8th century. Owing to its incredible temples, Pattadakal was titled a World Heritage Site by UNESCO in 1987.

The Keshava temple in Somnathpur in Karnataka is believed to have been built around AD 1268, under Somnatha (a general in the army Narasimha III) of the Hoysala dynasty.

The Sun Temple of Konark marks the highest point of achievement of Kalinga architecture depicting the grace, the joy and the rhythm of life all its wondrous variety. This temple was constructed by Raja Narasingh Deva-I of the Ganga Dynasty was dazzling supreme in the political firmament of India.

**The Eastern Gopura of Chidambaram Temple** or Thillai Natarajah. Temple, The Chidambaram or Chidambaram temple is a Hindu temple dedicated to Lord Shiva located in the town of Chidambaram in Tamil Nadu. It is built, by **Pandya ruler**.

126. The Senia tradition is

- (a) musical tradition that emerged from the colonial army (Sena)
- (b) dance drama written by K. Shab Chandra Sen
- (c) textile tradition of eastern Uttar Pradesh
- (d) musical tradition that invoked the name of Tansen, the celebrated musician of Akbar's Court

**Ans. (d)** The word 'Senia' is related to Tansen, the father of Indian classical music. The word 'Gharana' implies a style of music. The followers of Tansen's school of music are widely known as the followers of 'Senia gharana' (i.e. 'Seniya' style/school of music). The followers of this 'gharana' may either be related with the family of Tansen or by the age old tradition of 'Guru-Shishya parampara' (teacher to student relation).

127. Who among the following founded the Rajahmundry Social Reform Association in 1878 in support of widow remarriage?

- (a) Vishanshastri Pandit
- (b) Ishwar Chandra Vidyasagar
- (c) Pandita Ramabai
- (d) Veeresalingam Pantulu

**Ans.** (d) Kandukuri Veeresalingam Pantulu was a strong advocate of women's rights in the nineteenth century. He hailed and campaigned for his cause from the district of Rajahmundry in Andhra Pradesh and it is a point to note that the issue of reforms for women was untouched by colonial criticism in this part of the country.

**128.** The SAARC Secretariat is located at

- (a) New Delhi
- (b) Colombo
- (c) Kathmandu
- (d) Karachi

**Ans.** (c) The SAARC Secretariat is based in Kathmandu, Nepal. It coordinates and monitors implementation of activities, prepares for and services meetings and serves as a channel of communication between the Association and its Member States as well as other regional organisations.

**129.** The 19th century Faraizi Movement in eastern Bengal developed under the leadership of

- (a) Titu Rai
- (b) Haji Shariatullah
- (c) Shah Sayyid Ahmad
- (d) Dudu Miyan

**Ans.** (b) Haji Shariatullah regarded British rule in Bengal as injurious to the religious life of the Muslims. In pursuance of the Hanafi law he opined that the absence of a lawfully appointed Muslim caliph or representative administrator in Bengal deprived the Muslims of the privilege of holding congregational prayers. To the Faraizis, Friday congregation was unjustified in a non-Muslim state like Bengal.

**130.** The Indian States Committee was formed in 1928 under

- (a) the Raja of Junagadh
- (b) Ian Copland
- (c) Sir Harcourt Butler
- (d) Motilal Nehru

**Ans.** (c) Sir Harcourt Butler has made known his conclusion that the quality of administration in these States is continually improving. The Committee has yet to consider the large amount of material which has been laid before it, and its report will be as important in its own sphere as that of the Simon Commission.

After all, about a quarter of the population of India; lives under the ruling princes.

131. The Panchayati Raj system under Part-IX of the Constitution of India does not apply to the States of

- (a) Assam, Mizoram and Nagaland
- (b) Nagaland, Meghalaya and Tripura
- (c) Nagaland, Meghalaya and Mizoram
- (d) Sikkim, Tripura and Meghalaya

**Ans.** (c) States of Meghalaya, Mizoram, Nagaland and Jammu and Kashmir, the Union territory of Delhi, hill area in Manipur and Darjeeling in West Bengal have not been covered by the 73rd and 74th Constitutions Amendments.

132. The First Five Year Plan (1951-56) was drafted by

- (a) PC Mahalanobis
- (b) KN Raj
- (c) JC Kumarappa
- (d) Jawaharlal Nehru

**Ans.** (b) Kakkadan Nandanath Raj, who by then had a Phi from the London School of Economics, was drafted in by Jawaharlal Nehru to co-author the plan document. He also wrote its foreword. As the economist would reminisce later, the job was not easy by any standard given that the country did not have a statistical department then.

133. Who among the following is the author of the book 'Pakistan Paradox: Instability and Resilience'?

- (a) Christopher Jaffrelot
- (b) G. Parthasarthy
- (c) Imran Khan
- (d) Mamnoon Hussain

**Ans.** (a) The Pakistan Paradox by Christopher Jaffrelot, redoubtable scholar on South Asia, reveals a country grappling with multiple dichotomies, most of which can be traced to separatist ideals espoused by the country's early leaders.

134. Which one of the following was the theme of the 'International Day of United Nations Peacekeepers' for the year 2015?

- (a) Peacekeeping is a Global Partnership.
- (b) UN 70 and UN Peacekeeping : Past Present, and Future
- (c) Women in Peacekeeping
- (d) A Force for the Future

**Ans.** (b) The theme of International Day of UN Peacekeeper 2015, was UN 70 and UN Peacekeeping: Past, Present and Future".

135. Indian athlete Vikas Gowda is associated with

- (a) wrestling
- (b) sprint

(c) discus throw

(d) archery

**Ans.** (c) Vikas Gowda is an Indian discus thrower and Shot putter. He has qualified for the 2016 Olympics in the discus.

**136.** The 19th Federation Cup National Senior Athletics Championships (2015) was held in

(a) Karnataka

(b) Haryana

(c) Uttar Pradesh

(d) Kerala

**Ans.** (a) The Federation Cup 'National -Senior Athletics Championships is organised by the Athletics Federation of India (AFI), which is the apex body for running and managing athletics in India and is affiliated to the International Association of Athletics Federation and Indian Olympic Association. The 19th Athletics Championship in 2015 was held in Manglore, Karnataka.

**137.** A man is sitting in a train which is moving with a velocity of 60 km/h. His speed with respect to the train is

(a)  $\frac{10}{3}$  m/s

(b) 60 m/s

(c) infinite

(d) zero

**Ans.** (d) According to the concept of relative velocity, both the train and man moves with the velocity of 60 km/h. So, velocity of man w.r.t. train = velocity of man -velocity of train = 60 - 60 = zero(0)

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

	<b>List I</b> (Place)		<b>List II</b> (Normal Vegetation Type)
<b>A.</b>	Western Ghats	<b>1.</b>	Tropical Moist Deciduous
<b>B.</b>	Himachal Pradesh	<b>2.</b>	Tropical Evergreen
<b>C.</b>	Haryana and Punjab	<b>3.</b>	Himalayan Moist Forest
<b>D.</b>	Chhannagpur Plateau	<b>4.</b>	Tropical Thorny Forest

Code

	A	B	C	D		A	B	C	D
(a)	2	3	4	1	(b)	1	4	3	2
(c)	1	4	3	1	(d)	1	3	4	2

**(a) Tropical evergreen forests** or (tropical rainforests) are usually found in areas receiving more than 200 cm of rainfall and having a temperature of 15 °C to 30 °C and have annual humidity exceeding 77%. Evergreen forests are found on the eastern and western slopes of the Western Ghats in such states as

Tamil Nadu, Karnataka, Kerala and Maharashtra.

The Himalayan subtropical pine forests or **Himalayan moist forest** are a large subtropical coniferous forest ecoregion covering portions of Bhutan, India, Nepal, and Pakistan. It covers the northern Indian states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Sikkim.

The **Thorn forests** and scrubs are found in regions where the rainfall is less than 70cm. The Thorn forests are found in the semi-arid areas of Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Haryana. The Tropical moist deciduous forests are found in areas where the rainfall is between 100 cm to 200 cm. They are found in the north eastern states of Jharkhand, West Orissa and Chhattisgarh. Moist Deciduous Forests are also found on the eastern slopes of the Western Ghats.

**139.** The term 'Regur' used to mean

- (a) laterite soil
- (b) deltaic soil
- (c) red soil
- (d) black cotton soil

**Ans.** (d) Those soils are often referred to as regur but are popularly known as 'black cotton soils,' since cotton has been the most common traditional crop in areas where they are found. Black soils are derivatives of trap lava and are spread.

**140.** Graphite is a much better conductor of heat and electricity than diamond. This is due to the fact that each carbon atom in graphite

- (a) undergoes  $sp^2$ -hybridisation and forms three sigma bonds with three neighbouring carbon atoms
- (b) undergoes  $sp^3$ -hybridisation
- (c) is tetrahedrally bonded
- (d) is free from van der Waals' force

**Ans.** (a) Graphite is a good conductor of heat and electricity because of the presence of one free electron on each carbon atom as each carbon have  $sp^2$ -hybridisation (forms three sigma bonds with three neighbouring carbon atoms).

**Note** Carbon has 4 valency.

**141.** Which one of the following vitamins is synthesised in our own skin?

- (a) Vitamin-A
- (b) Vitamin-B
- (c) Vitamin-C
- (d) Vitamin-D

**Ans.** (d) Vitamin-D also known as calciferol refers to a group of fat-soluble vitamin responsible for enhancing intestinal absorption of calcium, iron, magnesium, phosphate and zinc. It is synthesised in our skin when we get exposed to sunlight.

142. Which one of the following is the SI unit of the thermal conductivity of a material?

- (a)  $Wm^{-1}K^{-1}$                       (b)  $Wm/K$                       (c)  $Wm^{-1}/K^{-1}$                       (d)  $Js^{-1}m^{-1}K$

**Ans.** (a) Thermal conductivity of a material is the amount of heat required per second to increase the temperature of unit length of the material having unit cross-section through  $1^{\circ}C$  or  $1 K$ .

$\therefore$  Unit of thermal conductivity is  $W m^{-1} K^{-1}$ .

143. Which one of the following statements is not correct?

- (a) Conduction can occur easily in solids, less easily in liquids but hardly at all in gases  
(b) Heat energy is carried by moving particles in a convection current  
(c) Heat energy is carried by electromagnetic waves in radiation  
(d) The temperature at which a solid changes into a liquid is called the boiling point.

**Ans.** (d) The temperature at which a solid changes into a liquid is called the melting point.

144. Which one of the following combinations of stalactites and stalagmites occurrences is correct?

- (a) Stalactites hang as icicles of different diameters and stalagmites hang from the floor of the caves.  
(b) Stalactites hang as icicles of different diameters and stalagmites rise up from the floor of the caves.  
(c) Stalactites rise up from the floor of the caves and stalagmites hang as icicles of different diameters.  
(d) Stalactites hang as icicles of different diameters and stalagmites also hang as icicles of different diameters.

**Ans.** (b) Stalactites and stalagmites are depositional landform formed by the action of ground water. Those depositional landform develop within limestone caves. Stalactites hang as icicles of different diameters. They are broad at their basers and taper towards the free ends stalagmites rise up from the floor of the caves.

145. Which one of the following is the correct sequence about various levels of organisation of Biosphere?

- (a) Ecosystem — Biosphere — Community — Population  
(b) Population — Organism — Ecosystem — Biosphere  
(c) Organism — Community — Population — Biosphere  
(d) Organism — Population — Ecosystem — Biosphere

**Ans.** (d) The correct sequence about various levels of organisation of biosphere is  
Organism Population  $\rightarrow$  Ecosystem  $\rightarrow$  Biosphere

146. Which of the following are the properties of an electron?

1. Electron is a constituent of cathode ray.
2. Electron is a negatively charged particle.
3. The mass of the electron is equal to the mass of the proton.
4. Electron is deflected by the electric field but not by magnetic field.

Select the correct answer using the code given below :

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

(c) 3 and 4

(d) 1 and 4

**Ans.** (a) JJ Thomson discovered electron in cathode ray tube experiment so, it is considered as the constituent of cathode ray.

It is a negatively charged particle and is deflected by both electric and magnetic field.

Proton is 1837 times heavier than an electron.

**147.** Carbon and energy requirements of autotrophic organisms are fulfilled by

(a) Photosynthesis

(b) Gluconeogenesis

(c) Glycogenesis

(d) External sources

**Ans.**

(a) The energy and carbon requirements of autotrophic organism like plants is fulfilled by the process known as photosynthesis.

In this process, water and carbon dioxide are taken from outside and in the presence of chlorophyll and sunlight. These raw materials are converted into carbohydrates which provides energy. Excess of carbohydrates are stored in the form of starch.

**148.** The resistance of a wire of length  $l$  and area of cross-section  $a$  is  $x$  ohm. If the wire is stretched to double its length, its resistance would become

(a)  $2x$  ohm

(b)  $0.5x$  ohm

(c)  $4x$  ohm

(d)  $6x$  ohm

**Ans.** (c) According to the question, resistance of wire is given by

$$x = \frac{\rho l}{a} \quad [\rho = \text{resistivity, } l = \text{length, } a = \text{area}]$$

**Note** If length is doubled, its area of cross-section decreases but volume remains constant.

$$\text{i.e. } l \times a = 2l \times A' \quad [A' = \text{New area}]$$

$$\Rightarrow A' = \frac{a}{2}$$

Now, new resistance,

$$R = \frac{\rho l}{a/2} = \frac{4\rho l}{a}$$

$$\text{as } \frac{\rho l}{a} = x$$

$$\text{So, } R = 4x$$

149. Which one of the following describes the Lithosphere?

- (a) Upper and lower mantle
- (b) Crust and upper mantle
- (c) Crust and core
- (d) Mantle and core

**Ans.** (b) Lithosphere, rigid, rocky outer layer of the Earth consisting of the crust and the solid outermost layer of the upper mantle. It extends to a depth of about 60 mi (100 km). It is broken into about a dozen separate, rigid blocks or plates. Slow convection currents deep within the mantle, generated by radioactive heating of the interior, are believed to cause the lateral movements of the plates (and the continents rest on top of them) at a rate of several inches per year.

150. Which of the following statements regarding heavy water are correct?

1. It is extensively used as a moderator in nuclear reactors.
2. It cannot be used in exchange reaction to study reaction mechanism.
3. Viscosity of heavy water is relatively smaller than that of ordinary water.
4. The dielectric constant of heavy water is smaller than that of ordinary water.

Select the correct answer using the code given below:

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

**Ans.** (d) Heavy water is used as a moderator in nuclear reactor and its dielectric constant is smaller than the ordinary water (Deuterium is heavier than Hydrogen).