

## PART - A

### USAGE OF PAIRED WORDS

**Directions :** In the following questions a pair of similar sounding words is provided. You are required to select the options that most appropriately describes the meaning of both the words and mark your response in the Answer Sheet accordingly.

1. 'Principal' and 'Principle'

(a) 'Principal' means belief system, and 'principle' means head of an educational institution

(b) 'Principal' means head of an educational institution, and 'principle' means original sum on which interest is charged

(c) 'Principle' means moral rule, and 'principal' means head of an educational institution.

(d) 'Principal' means original sum on which interest is charged, and 'principle' means head of an educational institution.

2. 'Plane' and 'Plain'

(a) 'Plane' means a flat surface, and 'plain' means something that flies.

(b) 'Plane' means the flat surface, and 'plain' means not elaborate.

(c) 'Plane' means something that flies, and 'plain' means flat surface.

(d) 'Plane' means not elaborate, and 'plain' means flat surface.

3. 'Pail' and 'Pale'

(a) 'Pale' means inferior or unimpressive, and 'pail' means faded.

(b) 'Pale' means faded or light in shade, and 'pail' means inferior or unimpressive.

(c) 'Pale' means faded or light in shade, and 'pail' means a bucket.

(d) 'Pale' means a bucket, and 'pail' means inferior or unimpressive.

4. 'Metal' and 'Mettle'

(a) 'Metal' is a hard shiny material that is a good conductor, and 'mettle' means malleable metal.

(b) 'Metal' is a hard shiny material that is a good conductor, and 'mettle' means metallic substance.

(c) 'Metal' means mental resilience, and 'mettle' is a hard shiny material that is a good conductor.

(d) 'Metal' is a hard shiny material that is a good conductor, and 'mettle' means mental resilience.

5. 'Hail' and 'Hale'

(a) 'Hail' means pellets of frozen rain, and 'hale' means wind storm

(b) 'Hail' means pellets of frozen rain, and 'hale' means strong and healthy

(c) 'Hail' means pellets of frozen rain, and 'hale' means to greet with enthusiastic approval

(d) 'Hail' means strong and healthy, and 'hale' means pellets of frozen rain



6. 'Conscious' and 'Conscience'

- (a) 'Conscious' means sense of right and wrong, and 'conscience' means awareness about something
- (b) 'Conscious' means alert, and 'conscience' means presence of mind
- (c) 'Conscious' means intent, and 'conscience' means unprincipled action
- (d) 'Conscious' means aware, and 'conscience' means sense of right and wrong

7. 'Dissent' and 'Descent'

- (a) 'Dissent' means having ideas different from general beliefs or official position, and 'descent' means movement towards a lower place
- (b) 'Dissent' means having ideas different from general beliefs or official position, and 'descent' means being of acceptable standard
- (c) 'Dissent' means being of acceptable standard, and 'descent' means movement towards a lower place
- (d) 'Dissent' means being of acceptable standard, and 'descent' means ideas different from general beliefs or official position

8. 'Devise' and 'Device'

- (a) 'Device' means to determine, and 'devise' means a piece of equipment meant for accomplishing a specific task.
- (b) 'Device' means finding a new way to do something, and 'devise' means to determine

- (c) 'Device' means a piece of equipment meant for accomplishing a specific task, and 'devise' means finding a new way to do something
- (d) 'Device' means finding a new way to do something, and 'devise' means a piece of equipment meant for accomplishing a specific task.

9. 'Discrete' and 'Discreet'

- (a) 'Discrete' means separate and distinct categories of objects, and 'discreet' means misuse of authority
- (b) 'Discrete' means separate and distinct categories of objects, and 'discreet' means maintaining confidentiality
- (c) 'Discrete' means being careful in what one says or does, and 'discreet' means separate and distinct categories of objects
- (d) 'Discrete' means misuse of authority and 'discreet' means being careful in what one says or does

10. 'Eminent' and 'Imminent'

- (a) 'Eminent' means important and famous, and 'imminent' means something about to happen
- (b) 'Eminent' means something unpleasant about to happen, and 'imminent' means important and famous person
- (c) 'Eminent' means important and famous person, and 'imminent' means inherent or existing within
- (d) 'Eminent' means inherent or existing within, and 'imminent' means something about to happen



## FILL IN THE BLANKS

**Directions :** In this section, each of the following sentences has a blank space and is followed by four words. Select the word you consider most appropriate to fill in the blank space and indicate your response on the Answer Sheet accordingly.

11. As the Southwest monsoon \_\_\_\_\_ through most of July, flash floods caused by the waters of the Narmada hit Jabalpur town.

- (a) lashed ✓
- (b) flourished
- (c) occupied
- (d) dried

12. Given the scale of the challenges that \_\_\_\_\_ us today, our company proposes more viable plans for sustainability.

- (a) supports
- (b) conflict ✓
- (c) confronts
- (d) convince

13. It is a really tough course, I am just worried that I won't be able to go the \_\_\_\_\_

- (a) way
- (b) distance
- (c) far ✓
- (d) route

14. The \_\_\_\_\_ of the advancement made in agricultural productivity in India has been remarkable.

- (a) extent
- (b) context
- (c) distance ✓
- (d) syntax

15. This essay \_\_\_\_\_ and examines various systems for water appropriation and agricultural practices adapted by society in the arid conditions of Rajasthan.

- (a) confuses
- (b) enhances ✓
- (c) controls
- (d) explores

16. India has been able to successfully \_\_\_\_\_ its population through family planning programmes.

- (a) sterilise
- (b) stabilise ✓
- (c) stratify
- (d) establish

17. Adolescence is the \_\_\_\_\_ wherein a child enters adulthood.

- (a) threshold ✓
- (b) position
- (c) condition
- (d) period

18. The British who ruled India for 200 years were here to \_\_\_\_\_ India's natural resources.

- (a) spoil
- (b) implore
- (c) exploit ✓
- (d) drill



19. Endangered species have a fifty per cent or greater probability of \_\_\_\_\_ within five years or two generations whichever is longer.

- (a) distinction
- (b) extinction
- (c) complication
- (d) completion

20. The first law of thermodynamics states that whereas energy can be \_\_\_\_\_ from one form into another, it cannot be created or destroyed.

- (a) reduced
- (b) induced
- (c) performed
- (d) transformed

### ANTONYMS

**Directions :** Each item in this section consists of a sentence with an underlined word followed by four words. Select the option that is opposite in meaning to the underlined word and mark your response in your Answer Sheet accordingly.

21. Many metals are malleable in nature and property.

- (a) hard
- (b) strong
- (c) tender
- (d) weak

(c) gaudy

(d) apparent

24. The experience of Covid Pandemic was excruciating for much of the population.

- (a) gnawing
- (b) gruelling
- (c) harrowing
- (d) mild

22. To neglect a warning is to invite danger.

- (a) disregard
- (b) ignore
- (c) regard
- (d) overlook

25. A trip to the hills was refreshing.

- (a) conniving
- (b) wearying
- (c) revivifying
- (d) rejuvenating

23. His ostentatious behaviour surprised everyone.

- (a) tawdry
- (b) modest



## COMPREHENSION

**Directions :** Carefully read the given passage and answer the questions that follow. You are required to select your answers solely based on the contents of the passage and the opinion of the author only.

### Passage

People by and large are concerned with and pursue self-interest. They are unlikely to be motivated to use renewable resources in a prudent and sustainable fashion. They are unlikely to be motivated under the following conditions : if their resource catchments are vast, so that degradation of any particular portion affects them very little; or if they have open before them possibilities of substitution as any one resource element is depleted; or if their control over the resource base is tenuous, so that others may, at any time, deplete a resource they value, even if they use it in a restrained fashion. Indeed, exhaustive use is highly likely when any one of these three conditions obtains. It is only when people perceive their resource catchments as limited, possibilities of substitution of exhausted resource elements as not readily feasible, and their own control over the resource base as secure, will they be motivated to use the resources in a prudent fashion. People, rooted in a locality, and retaining control over their resource base are most likely to fulfil all three prerequisites for sustainable resource use; and therefore to behave in ways conducive to the conservation of biodiversity within their localities.

26. Why, according to the writer can't people be motivated to use a resource prudently ?
1. They feel that others may overuse the resource
  2. It is possible to substitute the resource
  3. Abundance of the resource availability
- Select the correct answer using the code given below :
- (a) 1 only  
(b) 2 only  
(c) 2 and 3 only  
(d) 1, 2 and 3
27. When do people use resources exhaustively ?
- (a) When the substitution of resource is felicitated by NGOs
  - (b) When the resource is about to expand
  - (c) When the resources use has little impact
  - (d) When they desire desperately for sustainable development
28. The self-interest of people affects the use of renewable resources
- (a) positively
  - (b) erratically
  - (c) affirmatively
  - (d) indifferently



29. People rooted in a locality
- (a) cause harm to available resources
  - (b) generate resources
  - (c) believe in conservation and re-production of resources
  - (d) consume resources freely

30. Which among the following is closest in meaning with the word 'deplete' ?
- (a) exhaust
  - (b) complete
  - (c) replete
  - (d) desperate

### SYNONYMS

**Directions :** Each item in this section consists of a sentence with an underlined word followed by four words. Select the option that is nearest in meaning to the underlined word and mark your response in your Answer Sheet accordingly.

31. He is always captious.
- (a) worried
  - (b) passionate
  - (c) faultfinding
  - (d) jovial
32. Geomorphologists ascertain several wonderful facts about our earth.
- (a) verify
  - (b) invert
  - (c) increase
  - (d) omit
33. The Colonel ordered the Soldiers to meet him in the commissary.
- (a) office
  - (b) field
  - (c) playground
  - (d) canteen
34. The doctor dismembered the patient's finger first and then cured the ailment.
- (a) stitched
  - (b) dissected
  - (c) plastered
  - (d) splintered
35. Mr. Kumar works as a bursar in the sports academy.
- (a) secretary
  - (b) accountant
  - (c) coach
  - (d) trainer
36. His intentions are insidious.
- (a) pious
  - (b) inadvertent
  - (c) deceitful
  - (d) naive



37. Respect for other human beings is intrinsic to the teachings of all religions.

- (a) inconsistent
- (b) peripheral
- (c) inherent
- (d) existential

38. He completed the onerous task with relative ease.

- (a) smooth
- (b) complex
- (c) risky
- (d) wearying

39. Alfred was a potentate during the Middle Ages.

- (a) Monarch
- (b) lenient
- (c) liberal
- (d) democrat

40. I abandoned the task due to indolence.

- (a) difficulty
- (b) laziness
- (c) ugliness
- (d) helplessness

### SPOTTING ERRORS

**Directions :** Each item in this section has a sentence with three underlined parts labelled (a), (b) and (c). Read each sentence to find out whether there is any error in any underlined part and indicate your response in the Answer Sheet against the corresponding letter, i.e., (a) or (b) or (c). If you find no error, your response should be indicated as (d).

41. Bread, butter and jam common breakfast items  
(a) (b)  
that are consumed by many households. No error  
(c) (d)

42. Ten thousand dollars is the prize money being offered  
(a) (b)  
by the game show hosts. No error  
(c) (d)

43. Three hundred and sixty five create up the number of days  
(a) (b)  
in a calendar year. No error  
(c) (d)



44. The process of removing wool from the body of  
(a) (b)  
an animal is called sharing. No error  
(c) (d)

45. Many people came from faraway places to prayed  
(a) (b)  
at the temple on the auspicious day. No error  
(c) (d)

46. After reading foreword of the book on environmental issues in India,  
(a) (b)  
I decided to meet its author. No error  
(c) (d)

47. The guidance from the mentors and teachers facilitated the  
(a) (b)  
smooth conduct of elections to the Students' council. No error  
(c) (d)

48. The Principal of our school felicitated the students in  
(a) (b)  
the prize distribution ceremony. No error  
(c) (d)

49. If you were to come to Chennai to settle down  
(a) (b)  
it will be the best possible decision. No error  
(c) (d)

50. They had promised to delivered the bags before mid-March  
(a) (b)  
to enable us to inaugurate the shop. No error  
(c) (d)



## भाग - B

51.  $m$  द्रव्यमान के एक कण की गति को संबंध  $y = ut - \frac{1}{2}gt^2$  द्वारा वर्णित किया जाता है, जहां  $u$  कण का प्रारंभिक वेग है। कण पर कार्यशील बल क्या है ?

- (a)  $F = m \left( \frac{du}{dt} \right)$
- (b)  $F = mg$
- (c)  $F = m \left( \frac{dy}{dt} \right)$
- (d)  $F = -mg$

52. लकड़ी के एक ब्लॉक (विमा  $40 \text{ cm} \times 20 \text{ cm} \times 10 \text{ cm}$ ) को किसी मेज के ऊपर तीन भिन्न-भिन्न स्थितियों में रखा जाता है, जिसमें रखे गए (a) पार्श्व की विमा  $20 \text{ cm} \times 10 \text{ cm}$ ;  $P_A$  (b) पार्श्व की विमा  $10 \text{ cm} \times 40 \text{ cm}$ ; और  $P_B$  (c) पार्श्व की विमा  $40 \text{ cm} \times 20 \text{ cm}$  है।  $P_C$  लकड़ी के ब्लॉक द्वारा इन स्थितियों में मेज के ऊपर डाले गए दाब को क्रमशः  $P_A, P_B$  और  $P_C$  दर्शाया गया है। डाले गए दाब किस दाब प्रवृत्ति का अनुसरण करते हैं ?

- (a)  $P_A > P_B > P_C$
- (b)  $P_A < P_B < P_C$
- (c)  $P_A = P_B = P_C$
- (d)  $P_A < P_B = P_C$

53. अपचायक के रूप में कार्बन का प्रयोग करके निम्नलिखित में से किस धातु को निष्कर्षित किया जा सकता है ?

- (a) जिंक
- (b) चांदी
- (c) सोना
- (d) ऐलुमिनियम

54. कोलाइडी विलयन के संबंध में निम्नलिखित में से कौन-सा सही नहीं है ?

- (a) विलयन में कण सर्वत्र एकसमान रूप से वितरित होते हैं
- (b) कोलाइडी विलयन की प्रकृति समांगी है
- (c) वे टिंडल प्रभाव दर्शाते हैं
- (d) शांत रखे जाने पर वे नीचे नहीं बैठते

55. केरोसीन और पेट्रोल के मिश्रण को किसके द्वारा सर्वोत्तम रूप से पृथक किया जा सकता है ?

- (a) ऊर्ध्वपातन
- (b) पृथक्कारी कीप
- (c) प्रभाजी आसवन
- (d) संपीडन और शीतलन

56. डाल्टन द्वारा यथा प्रस्तावित, निम्नलिखित में से कौन-सा प्रतीक फॉस्फोरस को निरूपित करता है ?

(a)



(b)



(c)



(d)





57. Which among the following statements with respect to carbon is/are correct ?

1. Carbon forms the basis for all living organisms and many things we use
2. Carbon shows tetra-valency and the property of catenation
3. Carbon forms covalent bonds with itself and other elements
4. Carbon forms compounds containing triple and tetra bonds between carbon atoms

Select the correct answer using the code given below :

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

58. Consider the following statements :

1. Terracotta models of the plough have been found at sites in Cholistan and at Banawali (Haryana).
2. There is evidence of a ploughed field at Kalibangan associated with the mature phase of the Harappan civilization.
3. The ploughed field at Kalibangan had two sets of furrows crossing at right angles to each other suggesting two different crops were grown together in it.

Which of the statements given above are correct ?

- (a) 1, 2 and 3
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) None of the above

59. Which of the following statements about the technological innovations during the Industrial Revolutions are correct ?

1. Mule was the nickname for a machine invented in 1779, that allowed the spinning of strong and fine yarn.
2. Water Frame, invented in 1769 by Richard Arkwright, made it possible to weave pure cotton clothes.
3. Power loom, invented by Edmund Cartwright in 1787, could be used to weave any kind of materials.

Select the correct answer using the code given below :

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

60. Who among the following is known as the architect of Indian planning ?

- (a) V.K.R.V. Rao
- (b) Sukhamoy Chakravarty
- (c) P.C. Mahalanobis
- (d) John Mathai



61. Which one of the following Ashokan Minor Rock Edicts, contains the personal name of the king - Ashoka ?

- (a) Maski
- (b) Bahapur
- (c) Bairat
- (d) Sahasram

62. Arrange the following in correct chronological order

1. Charak Samhita
2. Bharat's Natyashastra
3. Sangam Literature
4. Ashtadhyayi

Select the correct answer using the code given below :

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

63. Which one of the following is NOT an example of Fold Mountain ?

- (a) Mt. Fuji
- (b) Alps
- (c) Andes
- (d) Rockies

64. Which one of the following is an organic soil ?

- (a) Aridisols
- (b) Histosols
- (c) Oxisols
- (d) Vertisols

65. The North-south and East-west Road Corridors of India cross each other at which of the following cities ?

- (a) Bhopal
- (b) Itarsi
- (c) Gwalior
- (d) Jhansi

66. Which one of the following climatic regions of the world have a typical characteristic of seasonal reversal of wind ?

- (a) British type Climate
- (b) Mediterranean Climate
- (c) China type Climate
- (d) Monsoon Climate

67. Which one of the following statement is NOT correct ?

- (a) Bokaro steel plant is located in Damodar river basin
- (b) Jamshedpur steel plant is located on the confluence of Damodar and Barakar
- (c) Salem steel plant is located on the bank of Kaveri River
- (d) Bhilai steel plant obtains water from Tandula reservoir

C - DFTK-F-TAG



68. How many of the following pairs of specialized agriculture and its products are correctly matched ?

1. Apiculture : Honey
2. Sericulture : Silk
3. Silviculture : Forestry
4. Viticulture : Grapes

Select the correct answer using the code given below :

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

69. Which one of the following crops is generally benefitted by the rain caused by western disturbances in India ?

- (a) Rice
- (b) Wheat
- (c) Bajra
- (d) Cotton

70. Which one of the following pairs of city and industry is NOT correctly matched ?

- (a) Saharanpur : Paper industry
- (b) Chanderi : Cotton textile industry
- (c) Bhadohi : Carpet industry
- (d) Raniganj : Iron and steel industry

71. Which one of the following metal is NOT an essential component in stainless steel ?

- (a) Iron
- (b) Nickel
- (c) Chromium
- (d) Tin

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

List I (Process)	List II (Separation method)
A. Separation of acetone and water from their mixture	1. Chromatography
B. Separation of water and kerosene oil from their mixture	2. Centrifugation
C. Separation of cream from milk	3. Distillation
D. Separation of pigments from plant extract	4. Separating Funnel

Code :

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

73. Which one of the following is NOT a requirement for photosynthesis ?

- (a) Chlorophyll
- (b) CO<sub>2</sub>
- (c) Water
- (d) O<sub>2</sub>



74. In flowering plants, DNA content of the parent plant gets halved during

- (a) Seed germination
- (b) Fruit formation
- (c) Flower bud formation
- (d) Pollen formation

75. Which one of the following is the correct sequence during sexual reproduction in Angiosperms ?

- (a) Egg → zygote → embryo → seed
- (b) Embryo → egg → zygote → seed
- (c) Egg → embryo → zygote → seed
- (d) Egg → seed → zygote → embryo

76. Which one of the following combinations of events represents the correct sequence during reproduction in flowering plants ?

- (a) Ovule → fruit; egg → embryo; zygote → seed; ovary → egg
- (b) Embryo → egg; ovary → fruit; ovule → zygote; zygote → seed
- (c) Ovary → fruit; zygote → egg; embryo → ovule; seed → fruit
- (d) Egg → zygote; zygote → embryo; ovule → seed; ovary → fruit

77. The book 'Nation First : The Golden Saga of 82 Years' is the history of which one of the following organizations ?

- (a) Indo-Tibetan Border Police
- (b) Border Security Force
- (c) Central Reserve Police Force
- (d) Central Industrial Security Force

78. Consider the following statements regarding Sanchi and its archaeological findings :

1. When Sanchi was discovered in 1818, three of its four gateways were still standing, the fourth was lying on the spot where it had fallen
2. Animals depicted at Sanchi include elephants, horses, monkeys and cattle

Which of the statements given above is/are correct ?

- (a) Only 1
- (b) Only 2
- (c) Both 1 and 2
- (d) Neither 1 nor 2

79. Which Five Year Plan of India focused on rapid industrialization based growth process ?

- (a) First Five Year Plan
- (b) Second Five Year Plan
- (c) Fifth Five Year Plan
- (d) Seventh Five Year Plan

80. *Chandimangala*, a sixteenth century text, was composed by

- (a) Hema Saraswati
- (b) Madhav Kandali
- (c) Tukaram
- (d) Mukundaram Chakrabarti

C - DFTK-F-TAG



81. Consider the following statements regarding the royal center in Vijayanagara Empire :

1. The royal center was located in the south-western part of the settlement
2. It included over 60 temples
3. About 30 building complexes at the site have been identified as palaces

Which of the statements given above is/are correct ?

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

82. Which one of the following statements is NOT correct ?

- (a) Area wise Madhya Pradesh is the fourth largest state in India
- (b) Hornbill festival is celebrated in Nagaland
- (c) Gujarat state contribute 7.9 per cent share to the National GDP
- (d) Telangana is situated in the Deccan plateau in the central stretch of Indian peninsula

83. Which one of the following soils is ideal for growing cotton ?

- (a) Regur soil
- (b) Laterite soil
- (c) Desert soil
- (d) Mountainous soil

84. Where is Central Institute of Buddhist Studies situated ?

- (a) Leh
- (b) Kullu
- (c) Almora
- (d) Gangtok

85. Consider the following statements about physical features of India :

1. The southern point of the Peninsular Plateau is formed by the Nilgiri Hills where the Eastern and the Western Ghats meet
2. The Cardamom Hills may be regarded as a continuation of the Eastern Ghats

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

86. Which one of the following is the narrow belt parallel to the Shiwalik foothills where streams and rivers coming from the mountains deposit heavy materials of rocks and boulders ?

- (a) Tarai
- (b) Bhangar
- (c) Bhabar
- (d) Khadar



87. Which of the following statements about Suez Canal is/are correct ?

1. Suez is a man-made navigation canal
2. Suez links Mediterranean Sea and the Red Sea
3. The economic significance of Suez Canal is less than that of Panama Canal

Select the correct answer using the code given below :

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

88. An iron nail sinks in water whereas an iron ship floats. Which of the following statements is correct in this regard ?

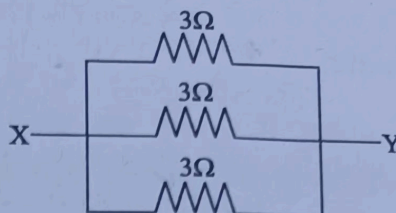
1. Average density of ship is greater than that of the water
2. Average density of iron nail is greater than that of the water
3. Average density of the ship is less than that of the water
4. Average density of the ship is equal to that of the water

Select the correct answer using the code given below :

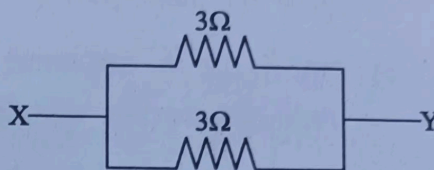
- (a) 1 and 2
- (b) 2 and 3
- (c) 2 and 4
- (d) 1 and 4

89. Which of the following arrangement of resistors offers minimum effective resistance between points X and Y ?

(a)



(b)



(c)



(d)



90. What will happen if a collection of positive and negative charges are passed at a high speed through a magnetic field which is perpendicular to the direction of motion of the charges ? (Assume that both kind of charges are NOT going to recombine)

- (a) Both kind of charges will stop moving
- (b) Positive charges and negative charges will separate out
- (c) Positive charges will stop but negative charges will continue moving uninterrupted
- (d) Both kind of charges will keep moving uninterrupted



91. The streaming of light beams coming from the Sun through trees is said to have suggested that light travels in straight line. The particles on the path of light beams are visible to us because

- (a) dust particles in the air reflect light into our eyes
- (b) dust particles in the air scatter light into our eyes
- (c) dust particles in the air refract light into our eyes
- (d) dust particles in the air polarize light into our eyes

92. The flash of lightning is seen before the thunderstorm is heard. It verifies that

- (a) sound travels much faster than light
- (b) light travels much faster than sound
- (c) light and sound both travel with same speed
- (d) intensity of flash of lightning is very high during thunderstorm

93. The potential difference between the two end terminals of an electric heater is 220 V and the current through it is 0.5 A. What would be the current through the heater if the potential difference across the terminals of the heater is reduced to 120 V ?

- (a) 1.0 A
- (b) 0.5 A
- (c) 0.27 A
- (d) 0.7 A

94. The heating element in an electric iron is usually made of

- (a) Constantan
- (b) Tungsten
- (c) Nichrome
- (d) Copper

95. Sita, 1.5 m high, stands before a plane mirror fixed on a wall to view her full image. What should be the minimum height of the plane mirror so that Sita can view her image fully ?

- (a) 0.50 m
- (b) 0.35 m
- (c) 0.75 m
- (d) 0.25 m

96. Galvanization is a method of protecting iron from rusting by coating with a thin layer of

- (a) Gallium
- (b) Aluminum
- (c) Zinc
- (d) Silver



97. Which one of the following alloys contains a non-metal as one of its constituent ?

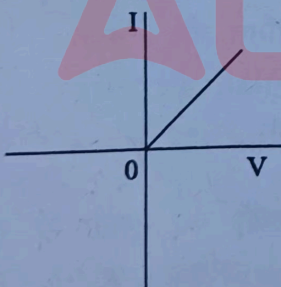
- (a) Brass
- (b) Bronze
- (c) Amalgam
- (d) Steel

98. Buckminster fullerene, which looks like a football, is an allotropic form of

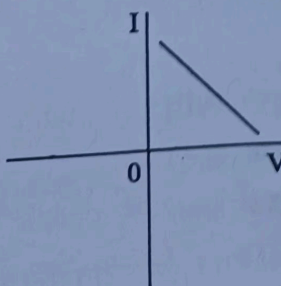
- (a) Phosphorus
- (b) Sulfur
- (c) Carbon
- (d) Tin

99. Which one of the following graphs correctly represents the current (I) – voltage (V) variation for a rectangular piece of a semiconductor wafer ?

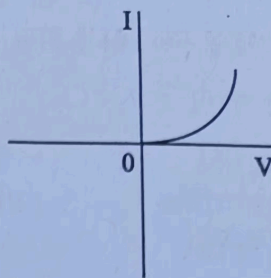
(a)



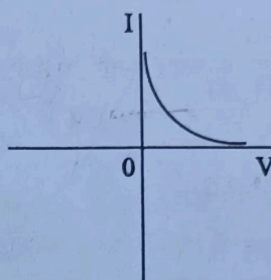
(b)



(c)



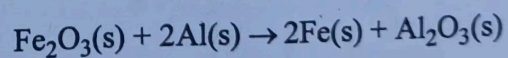
(d)



100. The green plants in a terrestrial ecosystem absorb sunlight that falls on their leaves and convert it into food energy. The percentage of solar radiation absorbed by all green plants for the process of photosynthesis is about

- (a) 1%
- (b) 5%
- (c) 8%
- (d) 10%

101. Consider the following reaction :



Which of the following statements about the given reaction is NOT correct ?

- (a) It is an example of displacement reaction
- (b) It is highly endothermic reaction
- (c)  $\text{Fe}_2\text{O}_3$  acts as oxidizing agent
- (d) This reaction is applicable to joining of railway tracks



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

List I (Chemical process)	List II (Reaction)
A. Electrolysis of water	1. Double displacement reaction
B. Burning of coal	2. Combination reaction
C. Iron nail immersed in copper sulphate solution	3. Decomposition reaction
D. Addition of barium chloride solution to aluminium sulphate solution	4. Displacement reaction

Code :

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

103. Which one of the following processes involves chemical reaction ?

- (a) Evaporation of petrol
- (b) Dissolution of salt in water
- (c) Storing of oxygen gas under pressure in a gas cylinder
- (d) Burning of magnesium ribbon in air

104. Which one of the following metals does NOT react with cold water to liberate hydrogen gas ?

- (a) Potassium
- (b) Iron
- (c) Calcium
- (d) Sodium

105. Consider the following reaction :



The respective state of HgO, Hg and O<sub>2</sub> in the above reaction is

- (a) Liquid, solid, gas
- (b) Solid, solid, gas
- (c) Liquid, solid, liquid
- (d) Solid, liquid, gas

106. The two important features of sexual reproduction in higher organisms that create genetic diversity in offspring are

- (a) Mitosis and fertilization
- (b) Meiosis and fertilization
- (c) Mitosis and binary fission
- (d) Meiosis and conjugation

107. Eukaryotic cells are much more complex as compared to prokaryotes. Which one of the following structures is exclusively present in a eukaryotic cell ?

- (a) Cell wall
- (b) Plasma membrane
- (c) Nucleic acid
- (d) Mitochondria



108. An important cause of tooth decay by the bacterium *Streptococcus mutans* is because of their ability to attach to teeth surface by producing slime layer from

- (a) Sugar
- (b) Alcohol
- (c) Saliva
- (d) Teichoic acid

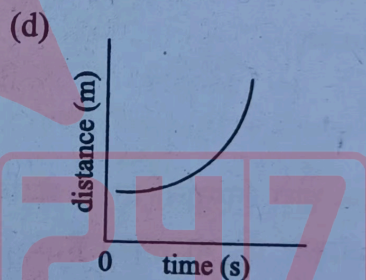
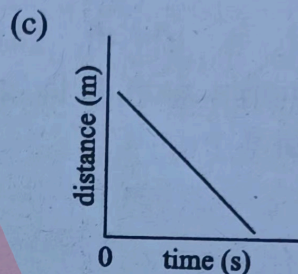
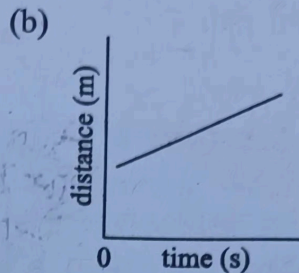
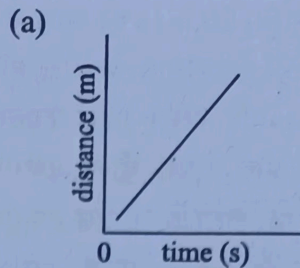
109. In angiosperms, pollen grain germinates to produce two male gametes. Which one of the following functions is carried out by these gametes ?

- (a) Both the gametes fuse with a single egg cell
- (b) Both the gametes fuse with two different egg cells
- (c) One gamete fuses with the egg cell and the other one eventually degenerate
- (d) One gamete fuses with the egg cell and the other one fuses with a diploid secondary nucleus

110. In a sexually reproducing organism, which one of the following statements is appropriate both for the parent and offspring ?

- (a) Chromosome number increases but DNA content remains constant
- (b) Both chromosome number and DNA content remains constant
- (c) Chromosome number decreases but DNA content remains constant
- (d) Both chromosome number and DNA content decreases

111. Which one of the following graphs represents the equation of motion  $v = u + at$ ; where all quantities are non-zero and symbols carry their usual meanings ?



112. Which one of the following statements is true for sound waves propagating in air ?

- (a) Sound is an electromagnetic wave and transverse in nature
- (b) Sound is a mechanical wave and longitudinal in nature
- (c) Sound is a mechanical wave and transverse in nature
- (d) Sound is an electromagnetic wave and longitudinal in nature



113. A 100 g sphere is moving at a speed of 20 m/s and collides with another sphere of mass 50 g. If the second sphere was at rest prior to the collision and the first sphere comes at rest immediately after the collision, considering the collision to be elastic, the speed of the second sphere would be

- (a) 10 m/s
- (b) 20 m/s
- (c) 30 m/s
- (d) 40 m/s

114. Which one of the following optical phenomena supports that the light is a transverse wave ?

- (a) Refraction
- (b) Diffraction
- (c) Interference
- (d) Polarization

115. How many of the following materials can be attracted by a magnet ?

- 1. Plastic
- 2. Carbon
- 3. Aluminium
- 4. Stainless Steel

Select the correct answer using the code given below :

- (a) 1
- (b) 2
- (c) 3
- (d) None

116. Consider the following statements with reference to the Bhoodan Movement :

- 1. Vinoba Bhave organized 'The Sarvodaya Samaj' to take up the work of non-violent transformation in India
- 2. Jayaprakash Narayan withdrew from active politics to join the Bhoodan Movement in 1953
- 3. In the wake of the Bhoodan Movement the first donation of land was made in the village of Pochampalli in Telangana

How many of the statements given above is/are correct ?

- (a) 1
- (b) 2
- (c) 3
- (d) None

117. Which among the following statements regarding the election of non-permanent members to the United Nations Security Council is/are correct ?

- 1. Five members coming from Africa and Asia, one from Eastern Europe, two from Latin America and two from Western Europe and other states
- 2. Six members are elected each year by the General Assembly for two year term

Select the correct answer using the code given below :

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2



118. Which one of the following provisions of the Constitution of India deals with District Planning Committee ?

- (a) 243ZD
- (b) 243ZB
- (c) 243ZE
- (d) 243ZC

119. Consider the following statements about Attorney-General in India :

1. She/he is the first law officer of the Government of India
2. She/he has a right to speak in any House of Parliament without any right to vote
3. She/he is appointed by the President of India
4. She/he is a whole-time counsel for the Government in the court of law

How many of the statements given above is/are correct ?

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

120. Which one among the following states was NOT impacted by the Land Boundary Agreement Treaty between India and Bangladesh (2015) ?

- (a) West Bengal
- (b) Assam
- (c) Tripura
- (d) Arunachal Pradesh

121. The 480 MW Phukot Karnali Hydro Electric Project is situated in

- (a) Thailand
- (b) Indonesia

- (c) Nepal
- (d) Bhutan

122. Consider the following statements about a river :

This river originates in the Hindu Kush mountain range and flows into Hamoun wetlands after covering a long stretch of about 1,100 km. There has been serious conflicts between two neighbouring nations regarding the sharing of water from this river. Identify the river from the following :

- (a) Mekong
- (b) Tarim
- (c) Indus
- (d) Helmand

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

List I (Bilateral Exercise)	List II (Participating Country)
A. Garuda Shakti	1. India and Japan
B. Nomadic Elephant	2. India and Sri Lanka
C. Mitra Shakti	3. India and Mongolia
D. Dharma Guardian	4. India and Indonesia

Code :

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



124. Consider the following statements about gallantry awards in India :

1. Post-independence, first three gallantry awards were instituted on 26th January, 1950
2. The first three gallantry awards were Ashoka Chakra Class-I, Ashoka Chakra Class-II and Ashoka Chakra Class-III

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

125. Consider the following statements about Centralized Laboratory Network (CLN) :

1. CLN works to test vaccines which can be used during pandemic
2. India is a member of CLN
3. CLN is a part of the Coalition for Epidemic Preparedness Innovations (CEPI)

Which of the statements given above is/are correct ?

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

126. Consider the following statements about Kavach, the automatic train protection system :

1. It is designed and developed by Research Design and Standard Organisation (RDSO) in collaboration with Railway Technical Research Institute (RTRI), Japan
2. The trials of Kavach were facilitated by the Southern Railway
3. Kavach is a state-of-the-art electronic system with Safety Integrity Level-4 (SIL-4)

Which of the statements given above is/are correct ?

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

127. The Nova Kakhovka dam, which was in news recently, is situated in

- (a) Belarus
- (b) Turkey
- (c) Ukraine
- (d) Poland

128. Aaron Finch, who recently retired from international cricket, was captain of men's cricket team of which one of the following countries ?

- (a) South Africa
- (b) Australia
- (c) England
- (d) New Zealand



129. Which one of the following is the name of the dashboard launched recently by the Reserve Bank of India to assess and monitor the progress of financial inclusion by capturing relevant parameters ?

- (a) *Pragya*
- (b) *Antardrishti*
- (c) *Divyachakshu*
- (d) *Antahgyan*

130. 'Sengol', installed in the new Parliament building of India, was seen as a symbol of the path of service, duty and nation in which Empire of the past ?

- (a) Gupta Empire
- (b) Shunga Empire
- (c) Pandyan Empire
- (d) Chola Empire

131. Relationship between a flower and honey-bee will help the flower for/in

- (a) Faster development
- (b) Pollination
- (c) Quick germination of pollen
- (d) Increase in size

132. Which one of the following was NOT a way in which kings in ancient India attempted to claim a higher status ?

- (a) Identifying with a variety of deities
- (b) Assuming pompous titles
- (c) Imposing high taxes
- (d) Conquests and annexation of territories

133. Which one of the following statements about the Bhakti movement is NOT correct ?

- (a) The Bhakti movement avoided traditions that promoted diversity
- (b) In northern India, the Bhakti movement revolved around the worship of Rama and Krishna
- (c) The Bhakti movement relied on the devotion of God, both with and without attributes
- (d) While Tulsidas represented the tradition of devotion with attributes, Sant Kabir followed the path of devotion without attributes

134. The 'Reign of Terror' in revolutionary France referred to

- (a) Bands of revolutionaries moving around to terrorise people who did not participate in the revolution
- (b) The royal forces punishing people who participated in the revolution
- (c) Trial and beheading persons considered enemies of the republic by the revolutionary tribunal
- (d) The general atmosphere of insecurity perceived by people after the beheading of the king

135. In which one of the following ways did the First World War Not impact Europe ?

- (a) From a continent of creditors it turned into a continent of debtors
- (b) Soldiers came to be placed higher in social status than civilians
- (c) Popular support decreased for conservative dictatorship which had come into being recently
- (d) National honour occupied centre stage in the public sphere



136. "...the immediate ending of British rule in India is an urgent necessity..." was a resolution of

- (a) Non Co-operation Movement
- (b) Quit India Movement
- (c) Individual Movement
- (d) Civil Disobedience Movement

137. Which one among the following pairs of mine and mineral is NOT correctly matched ?

- (a) Bailadila : Iron Ore
- (b) Zawar : Zinc
- (c) Ghatsila : Copper
- (d) Kudremukh : Bauxite

138. Which one of the following is the usual unit of measurement for Air Pressure used in India ?

- (a) Centimeter
- (b) Millibar
- (c) Milligram
- (d) Milliliter

139. Which one of the following is the oldest era in Geological History determining the age of various rock types ?

- (a) Precambrian
- (b) Mesozoic
- (c) Cenozoic
- (d) Paleozoic

140. A geographical grid has :

1. Lines that run east to west around the globe to mark latitude
2. Lines that run north to south from north pole to south pole indicate longitude

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

141. In which one of the following layers of the atmosphere all weather phenomenon occur ?

- (a) Mesosphere
- (b) Troposphere
- (c) Thermosphere
- (d) Stratosphere

142. In which one of the following states 'Roopkund' lake is located ?

- (a) Kerala
- (b) Manipur
- (c) Himachal Pradesh
- (d) Uttarakhand

143. Ram records the odometer readings of his car for the distance covered from 2000 km at the start of his journey and 2400 km at the end of the journey after 8 hours. What is the average speed of the car ?

- (a) 50 km/h
- (b) 60 km/h
- (c) 70 km/h
- (d) 80 km/h



144. Ms. Rani decides to convert her AC generator into a DC generator. Which one of the following she would need to use ?

- (a) A split-ring type commutator
- (b) Slip rings and brushes
- (c) A stronger magnetic field
- (d) A rectangular wire loop

145. Ramesh cannot see distinctly objects kept beyond 2 m. This defect can be corrected by using a lens of power

- (a) + 0.5 D
- (b) - 0.5 D
- (c) + 0.2 D
- (d) - 0.2 D

146. Which of the following statements are correct about the electrical resistance and resistivity of a wire ?

1. Both quantities depend on the area of cross-section of the wire
2. Both depend on the temperature
3. Resistance of the wire is directly proportional to the resistivity of the wire
4. Resistivity of the wire is directly proportional to the length of the wire

Select the correct answer using the code given below :

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

147. A liquid is heated up to a certain temperature. Which one of the following situation would correspond to the boiling of the liquid ?

- (a) When atmospheric pressure becomes equal to the vapour pressure
- (b) When atmospheric pressure becomes less than vapour pressure
- (c) When atmospheric pressure becomes higher than the vapour pressure
- (d) When vapour pressure becomes equal to the air pressure

148. Which one of the following is NOT an example of organic compound ?

- (a) Ammonium cyanate
- (b) Marsh gas
- (c) Urea
- (d) Cane sugar

149. Which one of the following acid is used by goldsmith for cleaning of gold and silver articles ?

- (a) Sulphuric acid
- (b) Nitric acid
- (c) Hydrochloric acid
- (d) Phosphoric acid

150. What is the action of litmus on ethanol ?

- (a) Litmus is neutral towards ethanol
- (b) Ethanol turns blue litmus to red; confirming acidic nature of ethanol
- (c) Ethanol turns red litmus to blue; confirming basic nature of ethanol
- (d) Ethanol decolorizes litmus through bleaching action