

D
GTA NDA II 2024

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

T.B.C. : SURN-A-GAT

Test Booklet Series

**TEST BOOKLET
GENERAL ABILITY TEST**

A

Maximum Marks : 600

Time Allowed : Two Hours and Thirty Minutes

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. **DO NOT** write anything else on the Test Booklet.
4. This Test Booklet contains 150 items (questions) in two parts : **PART-A** and **PART-B**. Each item in **PART-B** is printed both in Hindi and English. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
5. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. All items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator **only the Answer Sheet**. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong Answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY THE CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

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DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO

ध्यान दें : अनुदेशों का हिन्दी रूपान्तर इस पुस्तिका के मुखपृष्ठ पर छापा है।

PART - A

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

1. All human beings are fallible
 - (a) frail
 - (b) erring
 - (c) mortal
 - (d) perfect
2. His words were vague
 - (a) identical
 - (b) obscure
 - (c) precise
 - (d) imperceptible
3. She performed all her duties conscientiously
 - (a) assiduously
 - (b) carelessly
 - (c) painstakingly
 - (d) scrupulously
4. These risks are incidental to the work of a firefighter
 - (a) essential
 - (b) adventitious
 - (c) serendipitous
 - (d) subsidiary
5. She has always been disdainful of poor people
 - (a) reverential
 - (b) derisive
 - (c) supercilious
 - (d) insolent

Directions : In this section, there is a passage that has some blank spaces, each with four words or group of words. Select whichever word or group of words you consider the most appropriate for the blank space and indicate your response on the Answer Sheet accordingly.

Most of our food comes from agriculture, so we tend to believe that it is

- _____ 6. (a) independent of natural biota. This is not true. In nature,
(b) dependent
(c) relevant
(d) consequent

- _____ 7. (a) the plants and animals _____ 8. (a) had been continuously subjected
(b) both (b) will be continuously subject
(c) some (c) continuously subjected
(d) among (d) are continuously subjected

to the rigours of natural selection. Only the fittest survive. _____ 9. (a) Consequently
(b) Inadvertently
(c) Although
(d) Since

wild populations have numerous traits for competitiveness, resistance to parasites,

- _____ 10. (a) withdrawal to adverse conditions, _____ 11. (a) and
(b) tolerance (b) with
(c) adaptable (c) by
(d) compliance (d) upon

other aspects of vigour. In contrast, populations grown for many _____ 12. (a) eras
(b) epochs
(c) periods
(d) generations

under the pampered conditions of agriculture tend to lose these traits, because they

- _____ 13. (a) had selected for production, not resilience. For example, a
(b) have selected
(c) are selected
(d) might select

high-producing plant _____ 14. (a) whichever lacks resistance to drought is
(b) whom
(c) that
(d) whenever

- _____ 15. (a) heated and the resistance to drought is ignored. Also, in the
(b) irrigated
(c) showered
(d) deserted

process of breeding plants for maximum production, all genetic variation is eliminated.

Directions : Each of the following items features one part of a sentence followed by four alternatives. Complete the sentence by choosing the correct alternative.

16. Preeti suggests

- (a) that I ask to your advice
- (b) that I had asked your advice
- (c) that I can have asked your advice
- (d) that I ask your advice

17. We saw

- (a) the older of all monuments in the city
- (b) the old of all monuments in the city
- (c) the oldest monument in the city
- (d) an oldest of all monuments in the city

18. Since you have been touring all day

- (a) you must be tired
- (b) you ought to have been tired
- (c) you could had been tired
- (d) you might not be tired

19. His condition is serious, but

- (a) it should be worse
- (b) it ought to be worse
- (c) it could be worse
- (d) it had been going to be worse

20. I hope the bus comes soon because

- (a) we waited for half an hour
- (b) we have been waiting for half an hour
- (c) we waiting for half an hour
- (d) we could have been waiting for half an hour

21. Someone

- (a) has spilt juice on the sofa
- (b) should have spilt juice on the sofa
- (c) have spilt juice on the sofa
- (d) would spilt juice on the sofa

22. What would you do

- (a) if you found your lost toy?
- (b) if you will have found your lost toy?
- (c) if you would found your lost toy?
- (d) if you have find your lost toy?

23. If I were you

- (a) I shouldn't buy that dress
- (b) I wouldn't buy that dress
- (c) I weren't buying that dress
- (d) I mustn't buying that dress

24. I wish

- (a) I could help you
- (b) I ought to help you
- (c) I did help you
- (d) I must help you

25. The efforts of the security services have not been quite

- (a) upto the incredibility
- (b) up-take
- (c) up-tight
- (d) upto the mark

Directions : Given below are some idioms/phrases followed by four alternative meanings to each. Select the response (a), (b), (c) or (d), which is the most appropriate meaning and mark your response on the Answer Sheet accordingly.

- meaning and mark your response on the line.
26. A white lie
- (a) An offensive way of describing something
 - (b) To do something completely impossible
 - (c) A lie that is absolutely and universally true
 - (d) A lie that you tell to avoid hurting someone
27. Bad blood
- (a) Feelings of hatred between people
 - (b) A situation which goes from bad to worse
 - (c) A fatal accident
 - (d) To accept the unpleasant situation
28. Count your blessings
- (a) to start to understand how badly something has affected you
 - (b) an event which gradually becomes worse
 - (c) to be grateful for good things in your life
 - (d) something that you say in order to warn someone
29. Have the last laugh
- (a) to be the worst example of something
 - (b) to succeed when others thought that you would not
 - (c) to solve all the problems of life
 - (d) to laugh at someone secretly
30. Sit on the fence
- (a) to make someone suddenly notice you
 - (b) to fail completely
 - (c) to delay making a decision
 - (d) to behave very badly

Directions : Each of the following items in this section 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 have four sequences, namely (a), (b), (c) and (d). You are required to rearrange the jumbled parts of the sentences and mark your response accordingly.

31. good quality elementary education conforming as a fundamental right of all children
P Q
the Right to Education Act (RTE) mandates
R
to the standards and norms specified in the Act
S
- (a) Q S P R
(b) R P S Q
(c) R Q S P
(d) S Q P R

32. the conflicts and disputes in their mind music not only relieves the burden
P Q

on children and the young but also alleviates
R S

- (a) Q R S P
- (b) P S R Q
- (c) Q P R S
- (d) P Q R S

33. but it is virtually covered by a dome-shaped Antarctica is a continent
P Q

nearly twice as large as Australia ice sheet nearly 2 miles thick
R S

- (a) Q R P S
- (b) S P R Q
- (c) Q S P R
- (d) S Q R P

34. the global economic weight from the advanced economies
P

that there was a major shift in and Central Bank Governors, in recognition of the fact
Q R

the G20 was formed in 1999, as a forum of Finance Ministers
S

- (a) S P Q R
- (b) P Q R S
- (c) Q R S P
- (d) S R Q P

35. aquaculture nation in the world and India's products are exported to many nations
P Q

fish producing and the second largest India is the third largest
R S

- (a) S R P Q
- (b) Q P R S
- (c) R P Q S
- (d) P Q R S

Directions : Each of the following sentences has word(s) underlined. Read the sentences carefully and find which word class the underlined word(s) belong(s) to. Indicate your response on the Answer Sheet accordingly.

36. Adders are the only poisonous snakes found across Britain
(a) Noun
(b) Adjective
(c) Adverb
(d) Determiner X
37. She spoke to him once since he has been in town
(a) Adjective
(b) Adverb
(c) Conjunction
(d) Preposition
38. I don't really want to go. Besides, it's too late now
(a) Adjective
(b) Adverb
(c) Preposition
(d) Conjunction
39. Look at that man over there
(a) Adverb
(b) Conjunction
(c) Determiner
(d) Article
40. The plane is ready for take-off
(a) Noun
(b) Conjunction
(c) Verb
(d) Gerund

Directions : In this section, you have a short passage. After the passage, you will find some items based on the passage. Read the passage carefully and answer the items based on it. You are required to select your answers based on the contents of the passage and the opinion of author only.

We live in a time when globalisation is rapidly encompassing travel, information, trade and investment. The internet ties people together in ways unimagined a few years ago. The globalisation of health, however, remains an elusive goal, similar to the globalisation of economic well-being. Laurie Garrett, in *The Coming Plague*, describes an unwelcome form of globalisation: the globalisation of disease. Garrett examines the recent history of emerging diseases such as AIDS, Ebola, Hantavirus, Rift Valley Fever, Legionnaires' disease, and others. She also explains the resurgence of familiar diseases like tuberculosis, cholera, and pneumonia as a consequence of the widespread and unwise use of antibiotics. Many of the new diseases are clearly linked to changes in land use, which brings humans into close contacts with rodents or other animals that harbour viruses previously unknown to medicine and often deadly to humans. Resurgent diseases, by contrast, are a creation of our medical practice. By treating people with antibiotics without

restraint, we unknowingly select strains that are immune to the antibiotics and that pass on their resistant genes to unrelated bacteria by way of plasmid transfer. The heroes of her book are the women and men on the frontlines of epidemiology. Garrett makes a plea for a greater commitment from our universities, medical schools, and government agencies to train workers who will be capable of recognizing new diseases and who will be able to move about equally well in the laboratory, the hospital and the field in pursuit of knowledge and public-health intervention around the world.

41. What according to the passage is the 'unwelcome form of the globalization'?

1. Globalization of the diseases
2. Elusive goal of globalization
3. History of fatal diseases
4. Selective use of antibiotics

Select the correct answer using the code given below :

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

42. According to the passage, globalisation of health has become imperative due to

- (a) the globalisation of diseases
- (b) public health intervention
- (c) the creation of new medical systems
- (d) the indiscriminate use of antibiotics

43. According to the passage, resurgent diseases are affected by :

1. Medical practices
2. Overuse of antibiotics
3. Emergence of new strains

Select the correct answer using the code given below :

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

44. According to the passage, many new diseases are emerging due to change in land use because

- (a) humans are coming in contact with unfamiliar viruses
- (b) urbanisation makes pathogens proliferate
- (c) humans become adaptive and pass on their genes to related bacteria by way of plasmid transfer
- (d) humans are inadvertently releasing new viruses

45. What is the meaning of the word "epidemiology" in the passage?

- (a) The historical study of the spread of diseases
- (b) The scientific study of the spread and control of diseases
- (c) The scientific study of the invention and uses of drugs
- (d) The scientific study of the uses of drugs

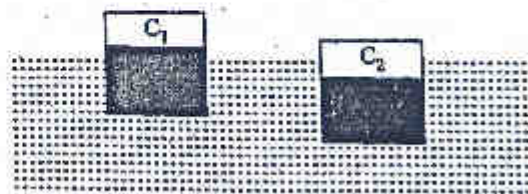
Directions : Each item in this section consists of a sentence with an underlined word followed by four words. Select the option that is nearest in meaning to the underlined word and mark your response on the Answer Sheet accordingly.

46. Sages and seers have cautioned that the path towards enlightenment is full of illusory traps
- (a) reasoned
(b) admitted
(c) warned
(d) refused
47. The officer reported the details of the mission in a monotonous manner
- (a) dull
(b) happy
(c) disturbed
(d) enthusiastic
48. There are many elusive questions in philosophy
- (a) clear
(b) baffling
- (c) paramount
(d) truthful
49. Cleaning this mess is a mammoth task
- (a) huge
(b) quick
(c) easy
(d) intelligent
50. The police department's image was tarnished after the high-profile murder case
- (a) enhanced
(b) tainted
(c) restored
(d) assigned

PART - B

51. Which one of the following statements about lysosomes is NOT correct?
- (a) They are waste disposal system of the cell
 - (b) They breakdown all inorganic materials
 - (c) These are also referred to as "suicidal bags"
 - (d) Lysosomes stop entry of foreign materials
52. Which of the following two cell organelles have their own genetic material?
- (a) Endoplasmic reticulum and plastids
 - (b) Endoplasmic reticulum and mitochondria
 - (c) Mitochondria and plastids
 - (d) Lysosomes and Golgi apparatus
53. Which one among the following tissues help to connect two bones?
- (a) Tendons
 - (b) Ligaments
 - (c) Areolar tissue
 - (d) Cartilage
54. Which one among the following is the source of energy in cells?
- (a) ADP
 - (b) ATP
 - (c) AMP
 - (d) NAD
55. In which one among the following the vegetative propagation takes place through Eye Buds?
- (a) Potato
 - (b) Ginger
 - (c) Onion
 - (d) Sugarcane
56. The intermixing of particles of two different types of matter on their own is called
- (a) Osmosis
 - (b) Brownian motion
 - ✓ (c) Diffusion
 - (d) Conductance
57. Which one among the following separation techniques is used for blood tests in diagnostic laboratories?
- (a) Filtration
 - (b) Chromatography
 - (c) Centrifugation
 - (d) Crystallization

58. Which one among the following elements is polyatomic ?
- Phosphorus
 - Sulphur
 - Chlorine
 - Aluminium
59. Which of the following anions has a valency of -3 ?
- Nitride
 - Nitrate
 - Sulphide
 - Sulphate
60. The mass of 0.5 mole of N_2 gas is
- 7 g
 - 14 g
 - 21 g
 - 28 g
61. The chemical reaction :
- $$2AgCl(s) \rightarrow 2Ag(s) + Cl_2(g)$$
- takes place
- in dark
 - in sunlight
 - on heating
 - under high pressure
62. Which one among the following is commonly used as an 'anti-skinning agent' in paints ?
- Gelatin
 - N-methyl pyrrolidone
 - Pyridine
 - Polyhydroxy phenol
63. Two resistances of 5.0Ω and 7.0Ω are connected in series and the combination is connected in parallel with a resistance of 36.0Ω . The equivalent resistance of the combination of three resistors is
- 24.0Ω
 - 12.0Ω
 - 9.0Ω
 - 6.0Ω
64. Shown in the figure are two hollow cubes C_1 and C_2 of negligible mass partially filled (depicted by darkened area) with liquids of densities ρ_1 and ρ_2 , respectively, floating in water (density ρ_W). The relationship between ρ_1 , ρ_2 and ρ_W is



- $\rho_2 < \rho_W < \rho_1$
- $\rho_2 < \rho_1 < \rho_W$
- $\rho_1 < \rho_2 < \rho_W$
- $\rho_1 < \rho_W < \rho_2$

65. An astronaut whose weight on the Earth is 600 N experiences weightlessness on International Space Station orbiting around the Earth. It means that

- (a) acceleration of the astronaut is zero
- (b) normal reaction of the space-station floor on the astronaut is zero
- (c) gravitational pull of earth on the astronaut is zero
- (d) space station applies a centrifugal force on the astronaut

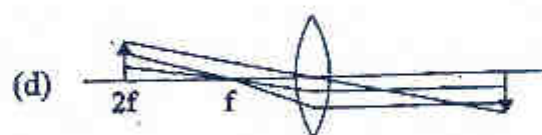
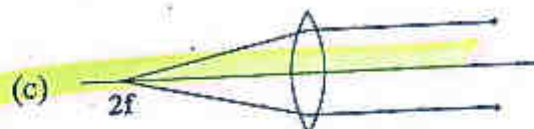
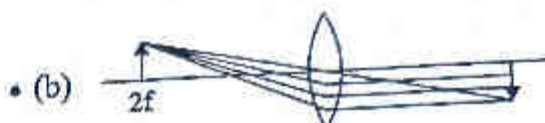
66. Which of the following statements give characteristics of contact forces ?

1. It appears between an object when it is in contact with some other object
2. It satisfies the third law of motion
3. It may appear between a pair of solid and fluid

Select the answer using the code given below :

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

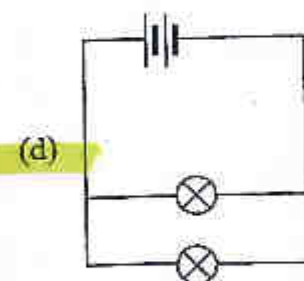
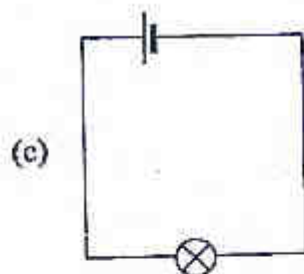
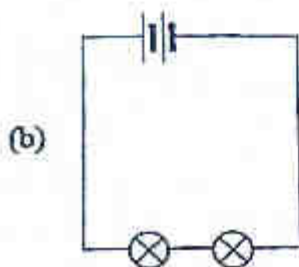
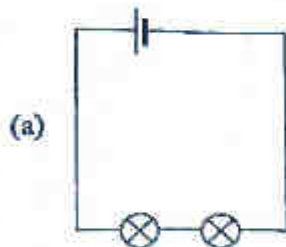
67. Which one among the following figures correctly represents the ray diagram ? (Consider the lens to be thin)



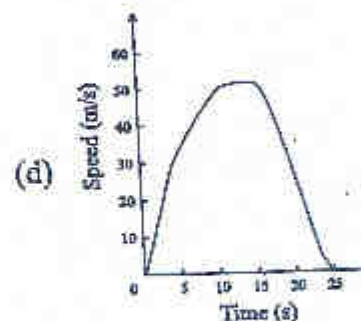
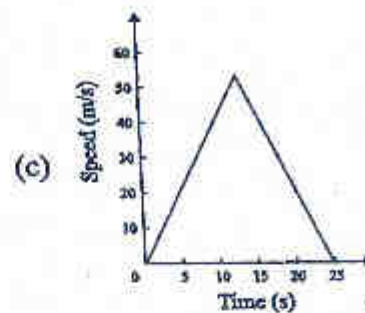
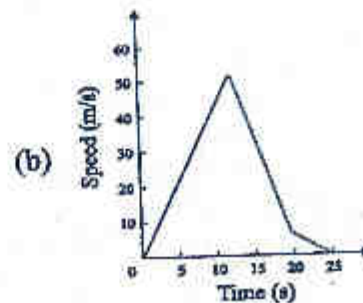
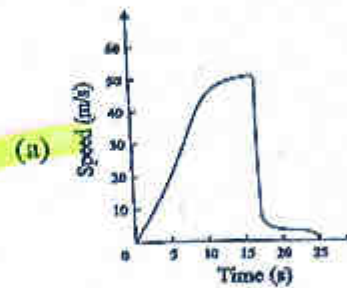
68. Lightning is due to

- (a) The flow of charges between different parts of the cloud
- (b) The short-circuiting of charges between the upper and lower surfaces of the cloud
- (c) The collection of positively charged particles on the base and collection of negatively charged particles at the top of the cloud
- (d) The induction of positive charge on the ground below the negative charge at the base of the cloud

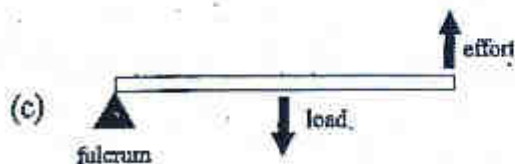
69. In which one among the following situations, the bulb \otimes would glow the most? (Consider all batteries are the same)



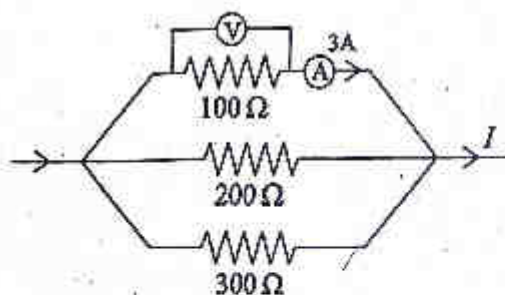
70. Which one among the following diagrams may correctly represent the motion of a skydiver during a jump?



71. Which one of the following sketches correctly describes a lever of second class ?



72. For an electric circuit given below, the correct combination of voltage (V) and current (I) is



- (a) $V = 900 \text{ V}$; $I = 18 \text{ A}$
 (b) $V = 300 \text{ V}$; $I = 5.5 \text{ A}$
 (c) $V = 600 \text{ V}$; $I = 1 \text{ A}$
 (d) $V = 300 \text{ V}$; $I = 2 \text{ A}$

73. Taxila was the capital of which one among the following Mahajanapadas of ancient India ?

- (a) Kuru
 (b) Kasi
 (c) Gandhar
 (d) Avanti

74. Who among the following was the last Governor-General of India before the office was permanently abolished ?

- (a) Lord Mountbatten
 (b) Chakravarti Rajagopalachari
 (c) Lord Wavell
 (d) Lord Linlithgow

75. Which among the following is/are the objective(s) of setting up of Planning Commission in the 1950s in India ?

1. To increase production and offering opportunities to all for employment
2. To make assessment of all resources of the country

Select the answer using the code given below :

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

76. Which among the following statements with regard to Five Year Plans in India is/are correct ?

1. The First and Ninth five year plans accorded high priority to agriculture
2. The Third Plan was based on the Harrod-Domar Model
3. Seventh Plan focused on food, work and productivity
4. The Ninth five year plan emphasized on massive investments in public sector

Select the answer using the code given below :

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

77. Before the inception of the First Five year Plan, which among the following Plans were initiated in India ?

1. Bombay Plan
2. Peoples Plan
3. Sarvodaya Plan
4. Gandhian Plan

Select the answer using the code given below :

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

78. Any land that is left fallow for more than five years is termed as

- (a) Current fallow
- (b) Fallow other than current fallow
- (c) Culturable waste land
- (d) Barren and waste land

79. Which statement is NOT correct with reference to Andaman and Nicobar Islands ?

- (a) Climate is humid, tropical coastal climate
- (b) Maximum rainfall occurs between March and April
- (c) Andaman and Nicobar islands are separated by 10 degree Channel which is 150 Km wide
- (d) Islands are inhabited by Negrito tribes

80. Which one among the following local winds is NOT related to Mediterranean Sea ?

- (a) Harmattan
- (b) Khamsin
- (c) Sirocco
- (d) Mistral

81. Which one among the following is a landlocked water body ?

- (a) Mediterranean Sea
- (b) Black Sea
- (c) Red Sea
- (d) Caspian Sea

82. Which one among the following statements with reference to Benguela current is NOT correct ?
- (a) It influences the climate of the West coast of North Africa
 - (b) It is a cold current
 - (c) Its direction is from South to North
 - (d) It flows in the Atlantic Ocean
83. The lowest part of most bolsons is occupied by a landform called *playa*. Which category of landform formation does it represent ?
- (a) Fluvial landforms
 - (b) Arid landforms
 - (c) Glacial landforms
 - (d) Periglacial landforms
84. Which one among the following diseases is caused due to deficiency of Vitamin D in humans ?
- (a) Beriberi
 - (b) Scurvy
 - (c) Rickets
 - (d) Pneumonia
85. Which one among the following combinations most appropriately represent the components of balanced diet ?
- (a) Carbohydrate, vitamins, proteins, fat, minerals, fibres and water
 - (b) Carbohydrate, vitamins, proteins, fat and minerals
 - (c) Carbohydrate, vitamins, proteins, minerals and water
 - (d) Vitamins, proteins, fat, minerals, fibres and water
86. In which part or organ of human body cartilage is NOT found ?
- (a) Nose
 - (b) Trachea
 - (c) Bronchiole
 - (d) Knee joint
87. Which part of nephron of the human kidney is responsible for filtration of blood for excretion ?
- (a) Collecting duct
 - (b) Renal vein
 - (c) Ureter
 - (d) Bowman's capsule
88. Organisms of which of the following phylum are called sponges ?
- (a) Coelenterata
 - (b) Platyhelminthes
 - (c) Porifera
 - (d) Echinodermata
89. A point object is placed at the centre of curvature of a spherical concave mirror. Which one among the following would be the correct location of image formed ?
- (a) At infinity
 - (b) At the centre of curvature
 - (c) At the focal point
 - (d) Between the focal point and the centre of curvature

90. Which one among the following is correct for a person suffering from myopia?

- (a) The person can see near objects clearly
- (b) The person can see distant objects clearly
- (c) The person cannot distinguish colours
- (d) The person can neither see near objects nor distant objects clearly

$$d_1 = 2t^2$$

91. A vehicle starts moving along a straight line path from rest. In first t seconds it moves with an acceleration of 2 m/s^2 and then in next 10 seconds it moves with an acceleration of 5 m/s^2 . The total distance travelled by the vehicle is 550 m. The value of time t is

$$9t^2 + 120t + 500 = 550$$

$$(a) 10 \text{ s}$$

$$9t^2 + 120t = 50 \quad (b) 13 \text{ s}$$

$$(c) 20 \text{ s}$$

$$(d) 25 \text{ s}$$

$$2t^2 + 20t + 550 = 550$$

$$v = 2t$$

$$u = 2t$$

$$a = 5, t = 10$$

$$v = (2t + 50)10$$

$$d_1 = 20t + 500$$

$$d_2 = 20t + 500$$

$$d_1 + d_2 = 550$$

$$2t^2 + 20t + 550 = 550$$

$$2t^2 + 20t = 0$$

$$2t(t + 10) = 0$$

$$t = 0 \text{ or } t = -10$$

$$t = 0$$

$$t = -10$$

$$t = 0$$

$$t = -10$$

$$t = 0$$

$$t = -10$$

$$t = 0$$

$$t = -10$$

93. An incandescent electric bulb converts 20% of its power consumption into light, and the remaining power is dissipated as heat. The bulb's filament has a resistance of 200Ω and 2 A current flows through it. If the bulb remains ON for 10 h and the rate of electricity charge is ₹5/unit, then which among the following is the correct amount for the money spent on producing light?

$$(a) ₹5$$

$$(b) ₹6$$

$$(c) ₹7$$

$$(d) ₹8$$

94. Which one of the following statements best defines the concept of heat?

(a) The transformation of energy from one form to another

(b) The conversion of energy into mass and vice-versa due to temperature difference

(c) The transfer of energy due to temperature difference

(d) The change in volume of a substance with temperature

95. The masses of two planets are in the ratio of $1:7$. The ratio between their diameters is $2:1$. The ratio of forces which they exert on each other is

$$(a) 1:7$$

$$(b) 7:1$$

$$(c) 1:1$$

$$(d) 2:1$$

$$(a) 10 \text{ kg/m}^3$$

$$(b) 100 \text{ kg/m}^3$$

$$(c) 1000 \text{ kg/m}^3$$

$$(d) 10000 \text{ kg/m}^3$$

$$-120 \pm \sqrt{14400 + 1800}$$

$$18$$

$$F_1 = \frac{G m_1 m_2}{r^2}$$

$$F_2 = \frac{G m_1 m_2}{r^2}$$

$$F = \frac{G m_1 m_2}{r^2}$$

$$F = \frac{G m_1 m_2}{r^2}$$

96. A car weighs 1000 kg. It is moving with a uniform velocity of 72 km/h towards a straight road. The driver suddenly presses the brakes. The car stops in 0.2 s. The retarding force applied on the car to stop it is

$$m = 1000$$

$$v = 72 \text{ km/h}$$

$$t = 0.2$$

- (a) 100 N
- (b) 1000 N
- (c) 10 kN
- (d) 100 kN

97. There is a ball of mass 320 g. It has 625 J potential energy when released freely from a height. The speed with which it will hit the ground is

- (a) 62.5 m/s
- (b) 2.0 m/s
- (c) 50 m/s
- (d) 40 m/s

98. Starting from rest a vehicle accelerates at the rate of 2 m/s^2 towards east for 10 s. It then stops suddenly. It then accelerates again at a rate of $4\sqrt{2} \text{ m/s}^2$ for next 10 s towards south and then again comes to rest. The net displacement of the vehicle from the starting point is

- (a) 100 m
- (b) 200 m
- (c) 300 m
- (d) 400 m

99. Which one of the following statements about the Industrial Revolution is correct?

- (a) Thomas Savery invented astrolabe
- (b) Thomas Newcomen invented chemical dyes

(c) James Watt's invention converted the steam engine from being a mere pump into one which would provide energy to power machines in factories

- (d) Mathew Boulton discovered the technique of refining gold of impurities

100. The first cotton mill in British India which began production in 1856 was set up by

- (a) Ghanshyam Das Birla
- (b) Jammalal Bajaj
- (c) Ambalal Sarabhai
- (d) C. N. Davar

101. Consider the following statements about the Linguistic Reorganization of the States :

1. Gandhiji, in 1948, had argued for the reorganization of provinces on a linguistic basis
2. The Constituent Assembly recommended it to be incorporated in the Constitution of India

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

102. Inspired by the Dandi March by Mahatma Gandhi, in Tamilnadu, C Rajagopalachari led a salt march from

- (a) Tirunelveli to Nagercoil
- (b) Kanchipuram to Mahabalipuram
- (c) Trichinopoly to Vedaranniyam on Tanjore coast
- (d) Chennai to Vellore

103. Acharya Vinoba Bhave received the first donation of land under the Bhoodan Movement at

- (a) Ramgarh
- (b) Garhwa
- (c) Hyderabad
- (d) Pochampally

104. Maize (*makka*) was introduced into India via

- (a) America and England
- (b) Africa and Spain
- (c) France and Russia
- (d) Portugal and Italy

105. Which of the following pairs of Himalayan Passes and the Ranges in which they are located is/are correctly matched?

- | | | |
|-----------------|---|------------------|
| 1. Zoji La | — | Great Himalayas |
| 2. Banihal Pass | — | Pir Panjal Range |
| 3. Photu La | — | Ladakh Range |
| 4. Khardung La | — | Karakoram Range |

Select the answer using the code given below :

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

106. Which one among the following statements with reference to the black cotton soils of India is NOT correct?

- (a) The black cotton soils are also called 'Regur'
- (b) They are highly moisture retentive
- (c) They are rich in lime
- (d) These soils have less clay factor and hence can support a wide variety of crops and vegetables

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

List I
(Hydroelectric Power Plant)

List II
(State)

- | | |
|--------------|----------------------|
| A. Doyang | 1. Arunachal Pradesh |
| B. Gomuti | 2. Assam |
| C. Kapili | 3. Tripura |
| D. Ranganadi | 4. Nagaland |

Code :

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

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

List I (Tropical Cyclone)	List II (Country)
A. Hurricanes	1. China
B. Willy Willy	2. Philippines
C. Baguio	3. Australia
D. Typhoons	4. USA

Code :

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

109. Consider the following facts of the rivers of the Indus system :

1. The Satluj originates in Tibet where it is known as Langchen Khambab
2. The Satluj is a classic example of an antecedent river
3. The Jhelum is the largest tributary of the Indus System

Select the answer using the code given below :

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

110. Which one of the following is an example of both an igneous as well as a metamorphic rock ?

- (a) Gabbro
(b) Geyserite
(c) Gneissoid
(d) Granite

111. Which one of the following is correct ?

- (a) Pyroxene is commonly found in meteorites
(b) Amphiboles form about 20% of the Earth's crust
(c) Quartz is soluble in water
(d) The word 'sedimentary' is derived from the Latin word *kelimentum*

112. Which one among the following processes is NOT part of chemical weathering ?

- (a) Solution
(b) Hydration
(c) Reduction
(d) Thawing

113. What is the maximum number of electrons that can occupy the first shell of an atom ?

- (a) 2
(b) 4
(c) 8
(d) 16

114. At which temperature does liquid water show maximum density ?

- (a) 299 K
(b) 277 K
(c) 285 K
(d) 373 K

277 K
277 K

115. Which one among the following has valency of 3 ?

- (a) Carbon
- (b) Oxygen
- (c) Nitrogen
- (d) Sodium

116. Which one among the following is an example of oxidation reaction ?

- (a) Freezing of water
- (b) Dissolving sugar in water
- (c) Rusting of iron
- (d) Boiling of petrol

117. Which one among the following fertilizers is a source of nitrogen ?

- (a) Superphosphate
- (b) Potassium sulfate
- (c) Bone meal
- (d) Urea

118. For Aluminium (Al) (atomic number : 13, mass number : 27), which one among the following statements is NOT correct ?

- (a) Number of electrons present in Al is 13
- (b) Number of protons present in Al is 13
- (c) Number of neutrons present in Al is 14
- (d) The valency of Al is 2

119. The elemental composition of diamond is

- (a) Carbon and Hydrogen
- (b) Carbon and Oxygen
- (c) Pure Carbon
- (d) Pure Silicon

120. Which one among the following is an example of chemical change ?

- (a) Sublimation of camphor
- (b) Melting of ice
- (c) Heating of an iron rod
- (d) Mixing of NaOH and HCl

121. Which one among the following is the correct focal length of a combination of lenses of power 2.5 D and -2.0 D ?

- (a) +0.5 m
- (b) -0.5 m
- (c) +2.0 m
- (d) -2.0 m

122. The AC mains domestic supply current in India changes direction in every

- (a) 50 s
- (b) $\frac{1}{50}$ s
- (c) 100 s
- (d) $\frac{1}{100}$ s

123. A block of mass 2.0 kg slides on a rough horizontal plane surface. Let the speed of the block at a particular instant is 10 m/s. It comes to rest after travelling a distance of 20 m. Which one of the following could be the magnitude of the frictional force ?

- (a) 10 N
- (b) 20 N
- (c) 40 N
- (d) 50 N

$m = 2$, $u = 10$
 $v = 0$, $s = 20$
 $a = \frac{v^2 - u^2}{2s}$
 $= \frac{0 - 100}{2 \times 20} = -2.5$
 $F = ma = 2 \times (-2.5) = -5$
 $F = 5$
 A - SURN-A-GAT
 $-100 = 2a \times 20$
 $\frac{-100}{40} = a$
 $a = -2.5$

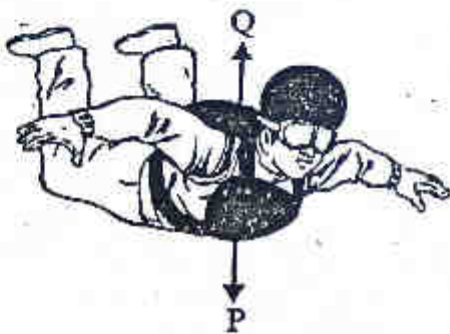
124. Given below are the four cases in which certain heat transfer is taking place :

1. Ice is melting in a glass full of water
2. Water is boiling in an open container
3. A metal rod is heated in a furnace
4. A cup of coffee is allowed to cool on a table

In which of the above cases, the Newton's Law of Cooling is applicable?

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

125. The figure given below shows the direction of the two forces P and Q acting on a skydiver :



Which one among the following statements is correct about the two forces?

- (a) Force P is caused by the gravity and force Q is caused by the friction

- (b) When the force P is bigger than the force Q, the speed of the skydiver remains the same

- (c) After the parachute opens, force P remains the same while force Q increases

- (d) After the parachute opens, force P decreases while force Q increases

126. Vijayanagara rulers claimed that they were ruling on behalf of

- (a) Lord Murugan
- (b) Lord Venkateshwara
- (c) Shri Virupaksha
- (d) Shri Vallabha

127. Domingo Paes describes a king in these words : '*Of medium height, and of fair complexion and good figure, rather fat than thin; he has on his face signs of smallpox*'. Identify the king from the options given below.

- (a) Krishnadeva Raya
- (b) Ram Raya
- (c) Devaraya II
- (d) Devaraya I

128. In which Schedule of the Constitution of India, provisions as to disqualification on grounds of defection are given?

- (a) Ninth Schedule
- (b) Tenth Schedule
- (c) Eleventh Schedule
- (d) Sixth Schedule

129. Consider the following statements :

1. The duties of the Attorney General of India are to give advice to the Government of India upon such legal matters, and to perform such other duties of a legal character, as may from time to time be referred to or assigned to him by the President of India
2. The Solicitor General of India is the secondary Law Officer of the country, who assists the Attorney General, and is himself assisted by several Additional Solicitor Generals of India

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

130. Which of the following Committees does NOT consist of Members from the Upper House of the Parliament ?

1. Public Accounts Committee
2. Estimates Committee
3. Committee on Public Undertakings

Select the answer using the code given below :

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

(c) 2 only

(d) 3 only

131. In the passing of a Money Bill, the Rajya Sabha has limited powers in that it shall return the Bill, with or without any recommendation, within the stipulated time of

(a) 12 days

(b) 21 days

(c) 14 days

(d) 30 days

132. Which of the following statements with regard to Article 19(1) of the Constitution of India is/are correct ?

1. Freedoms under this Article are not absolute

2. Reasonable restrictions can be imposed on the exercise of freedoms under this Article

Select the answer using the code given below :

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

133. Which of the following is NOT a part of the five principles enshrined in the 'Panchsheel' agreement signed by India and China in 1954 ?

(a) Mutual non-aggression

(b) Mutual non-interference

(c) Peaceful coexistence

(d) Cultural cooperation

134. Freedom Fighter Kanaklata Barua sacrificed her life while participating in

- (a) Rowlatt Satyagraha
- (b) Non-Cooperation Movement
- (c) Civil Disobedience Movement

(d) Quit India Movement

135. Where is the Coriolis Effect the largest ?

- (a) At the Equator
- (b) At the Tropic of Capricorn and Tropic of Cancer

(c) At the North Pole

(d) At 45 degree latitude in each hemisphere

136. In which among the following states in India, the Sun rays are never perpendicular ?

- 1. Bihar
- 2. Chhattisgarh
- 3. Manipur
- 4. Rajasthan

Select the answer using the code given below :

(a) 1 and 2

(b) 1 and 3

(c) 2 and 3

(d) 2 and 4

137. Which of the following is/are east flowing rivers in India ?

- 1. Palar
- 2. Periyar
- 3. Pennar
- 4. Kalinadi

Select the answer using the code given below :

(a) 1 only

(b) 1 and 3

(c) 2 and 4

(d) 4 only

138. Which of the following tributaries is/are correctly matched with the Deccan Rivers ?

Tributary	River
1. Bhavani	Krishna
2. Kabini	Kaveri
3. Manjra	Godavari
4. Bhima	Mahanadi

Select the answer using the code given below :

(a) 1 and 2

(b) 2 and 3

(c) 1 and 3

(d) 3 and 4

139. Which one of the following is found in appreciable amount in Laterite soil in India ?

- (a) Calcium
- (b) Phosphate
- (c) Potash
- (d) Nitrogen

140. Consider the following statements regarding River Brahmaputra :

1. It rises in Tibet, near Lake Mansarovar
2. It takes a "U" turn near Namcha Barwa and enters India through a gorge

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. "Not me, but you" is the motto of which one of the following youth organizations/schemes ?

- (a) Rashtriya Yuva Sashaktikaran Karyakram
- (b) National Service Scheme (NSS)
- (c) National Young Leaders Programme
- (d) National Discipline Scheme (NDS)

142. "Fitness ka dose, aadha ghanta roz" campaign, is associated with

- (a) Khelo India
- (b) Fit India Programme
- (c) Mera Yuva Bharat
- (d) Healthy Heart Programme

143. Consider the following statements :

1. Kozhikode has been included in UNESCO's creative cities network as the 'City of Music'
2. Garba of Gujarat has been declared by UNESCO as an intangible cultural heritage

3. Gwalior has been included in UNESCO's creative cities network as the 'City of Literature'

How many of the above statements is/are correct ?

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

144. ASEAN-India Millet Festival-2023, organized by Indian Mission to ASEAN, was held in which one of the following countries ?

- (a) India
- (b) Indonesia
- (c) Malaysia
- (d) Thailand

145. Consider the following statements :

1. First Indian Military Heritage festival was inaugurated in October 2023 in Pune
2. First Green Hydrogen Fuel Cell Bus was flagged off in India in Bangalore
3. South Africa chaired the 15th BRICS Summit held in 2023
4. Viksit Bharat Sankalp Yatra was flagged off in 2023 from Jharkhand

How many of the above statements is/are correct ?

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

146. Which of the following statements about 'ULLAS' scheme is/are NOT correct?

1. It's a Centrally Sponsored scheme which aims at securing childhood for street children
2. It's a scheme aligned with National Education Policy-2020 which aims at empowering adults aged 15 or above who could not get due schooling

Select the answer using the code given below :

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

147. Which one of the following statements is NOT correct about NATO?

- ☒ (a) It was formed out of the signing of the Washington Treaty
- (b) Russia is not a member of this organization
- (c) It derives its authority from the UN Charter
- ☒ (d) Finland is its latest member

148. In January 2024, India has entered into a bilateral agreement through which it will provide grant assistance to a country to construct a 20 feet Bailey bridge. Identify the country.

- (a) Nepal
- (b) Bangladesh
- (c) Bhutan
- (d) Myanmar

149. Which one among the following Joint Military Exercises was NOT conducted between India and USA?

- (a) Yudhabhyas
- (b) Vajra Prahar
- (c) Malabar
- (d) Varuna

150. Consider the following statements :

1. India has secured 10th rank in International Shipment category in World Bank's Logistics Performance Index Report-2023
2. Global Maritime India Summit-2023 was held in Vishakhapatnam
3. 'Maritime Amrit Kaal Vision 2047' was launched during Global Maritime India Summit-2023

How many of the above statements is/are correct?

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