

PART - A
Idioms and Phrases

Directions : Given below are some idioms/phrases followed by four alternative meanings for each. Choose the most appropriate answer from among the options (a), (b), (c) or (d).

1. The lion's share
 - (a) A portion of something
 - (b) The largest and the best part of something
 - (c) An important decision
 - (d) An aggressive statement

2. Spill the beans
 - (a) Reveal a secret
 - (b) Forced to leave belongings
 - (c) Share the news
 - (d) Take offence at someone's rude behaviour

3. Cook someone's goose
 - (a) To assist others
 - (b) Hypnotize other's mind
 - (c) To spoil other's plans
 - (d) Inviting misfortune

4. Disappear into thin air
 - (a) Lost forever
 - (b) Become forgetful
 - (c) Become uncaring
 - (d) Disappear suddenly

5. Put the screws on
 - (a) Forcing someone to do what you want
 - (b) Never letting go of things
 - (c) Keep the past alive
 - (d) Using someone's trick for own benefit

6. Sit on the fence
 - (a) Avoid meeting someone
 - (b) Waiting patiently
 - (c) Avoid taking sides
 - (d) Hiding from someone

7. Be as sharp as a tack
 - (a) A talkative person
 - (b) A shrewd person
 - (c) A clumsy person
 - (d) A clever person

8. From pillar to post
 - (a) Upside down
 - (b) Keep moving from one place to another
 - (c) Constructing a huge building
 - (d) Jumping from the top of the mountain

9. Heath Robinson
 - (a) Very complicated system or machine for doing a simple task
 - (b) Treating everyone as enemy, when they are not
 - (c) Sleeping all day, doing nothing
 - (d) Very lazy person, slow in action

10. As thick as thieves
 - (a) Dumb person
 - (b) Good for nothing
 - (c) Someone who uses everyone for personal gain
 - (d) Very close friends who are looked upon with suspicion

Antonyms

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

1. The parental support can fortify a child's learning.
(a) weaken
(b) encourage
(c) brace
(d) strengthen
12. Now we can have another dazzling thought, as an outcome of my brilliant research!
(a) splendid
(b) murky
(c) dazing
(d) fulgent
13. The group held some clandestine meetings to resolve the matter.
(a) secret
(b) covert
(c) sneaky
(d) public
14. In the winters, the countryside view is bleak and the house is drafty.
(a) cheerless
(b) verdant
(c) desolate
(d) bare
15. Amid commotion the leader and his supporters remained passive.
(a) quietude
(b) uproar
(c) tempest
(d) stir
16. He had the audacity to blame him.
(a) boldness
(b) vigour
(c) temerity
(d) politeness
17. They are making plans for the abatement of the nuisance within a specified time.
(a) subsidence
(b) ebbing
(c) accumulation
(d) mitigation
18. There is exponential growth in the development of the scientific researches in the recent few decades.
(a) aggressive
(b) rampant
(c) meager
(d) augmented
19. He was known for his sagacity.
(a) prudence
(b) wisdom
(c) ignorance
(d) sapience
20. The river Ganges culminates in the Bay of Bengal.
(a) concludes
(b) flows
(c) originates
(d) merges

Spotting Errors

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

21. Over long periods of time, layers of sediments builds up to a height of a few kilometers
(a) (b) (c)
No Error
(d)

22. When a gas is cooled down it turns into a liquid from a process called condensation.
(a) (b) (c)
No Error
(d)

23. If you want to know the news you can read a newspaper. No Error
(a) (b) (c) (d)

24. Columbus made his first voyage from Europe to America on 1492.
(a) (b) (c)
No Error
(d)

25. Whenever the sky is clear, you can see the stars in the night. No Error
(a) (b) ~~(c)~~ (d)

26. I'm not working tomorrow, so I don't had to get up early. No Error
(a) (b) (c) (d)

27. She didn't tell anybody about her plans. No Error
(a) (b) (c) (d)

28. She wouldn't have has an accident, if she had driven carefully.
(a) (b) (c)
No Error
(d)

29. I will watch film if I finish the work in time. No Error
(a) (b) (c) (d)

30. In 1989, the government did an about-face and Iran restored it's family planning program
(a) (b) (c)
No Error
(d)

Synonyms

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

31. During the pandemic the indigent people had to suffer a lot.
(a) very poor
(b) opulent
(c) solvent
(d) prosperous
32. She had no idea what made him angry in one minute and joyful the next.
(a) aggrieved
(b) melancholic
(c) doleful
(d) mirthful
33. It is sheer lunacy to drive a car in this frosty weather.
(a) prudence
(b) normalcy
(c) insanity
(d) sanity
34. Operating on a child with cancer needs meticulous planning and teamwork.
(a) strong
(b) long
(c) playful
(d) scrupulous
35. The thrill of over-speeding the vehicle can be exhilarating, but it is important not to take the consequences lightly.
(a) humdrum
(b) dreary
(c) exciting
(d) agitating
36. The redemption will now depend on his new strategy of inclusiveness.
(a) retrieval
(b) forfeiture
(c) corporation
(d) desecration
37. Only three candidates are now in contention for the title.
(a) involved in dispute
(b) in agreement with each other
(c) chance of winning
(d) amiable to each other
38. All my fishing paraphernalia is in the car.
(a) boxes
(b) accessories
(c) fuel
(d) food
39. The public watched in astonishment as he took a sudden jump from the bridge.
(a) anticipation
(b) hurriedly
(c) wonderment
(d) calmness
40. Drinking inordinate amount of liquor is not good for health.
(a) temperate
(b) exorbitant
(c) moderate
(d) regular

44. ripping roofs off houses and raising fears of coast of Madagascar in the early hours,
P Q
cyclone Emnati crashed into the southeastern flooding and food shortages in the region
R S

The correct sequence should be :

- (a) SPRQ
(b) RPSQ
(c) RQPS
(d) PRSQ

45. ecology is protected and aquatic life thrives we need to utilize the resources of water
P Q
for different purposes while ensuring that its natural
R S

The correct sequence should be :

- (a) SPRQ
(b) RQPS
(c) QRSP
(d) PRSQ

46. very difficult the poor visibility made the movement of traffic due to fog
P Q R S

The correct sequence should be :

- (a) SPRQ
(b) RQPS
(c) QRPS
(d) QSRP

47. avenues for the patients to indict but rarely is it the other way round

P

Q

there are multiple legal the doctors

R

S

The correct sequence should be :

- (a) SPRQ
- (b) RPSQ
- (c) QRPS
- (d) QSRP

48. flight, and each person her own journey life is a solo makes his or

P

Q

R

S

The correct sequence should be :

- (a) SPRQ
- (b) RPQS
- (c) RPSQ
- (d) PQRS

49. made it evolve technologies and equipment has

P

Q

into a rare centre of excellence adoption of the latest

R

S

The correct sequence should be :

- (a) PQRS
- (b) RPQS
- (c) SQPR
- (d) QSRP

50. please mark the same be made in response to this notice

P

Q

if you have any complaint to to the concerned authority

R

S

The correct sequence should be :

- (a) PQRS
- (b) RPQS
- (c) SQPR
- (d) RQPS

PART - B

51. Which one of the following statements about X-rays is *not* true ?
- They have wavelengths of about 1 Å.
 - These can be generated by bombarding a metal target by high energy electrons.
 - Due to their wavelengths being shorter, these can be used for radar systems.
 - These are also used for the treatment of certain forms of cancer.
52. Which one among the following is the northernmost geographical location ?
- New Delhi
 - Kathmandu
 - Thimphu
 - Dhaka
53. Consider the following statements :
- Distance between the longitudes becomes zero on North Pole and South Pole.
 - Distance between the longitudes is maximum on the Equator.
 - Number of longitudes is more than number of latitudes.
- Which of the statements given above is/are correct ?
- 1 only
 - 2 only
 - 1 and 3 only
 - 1, 2 and 3
54. Which one among the following states is the leading producer of Manganese in India ?
- Madhya Pradesh
 - Jharkhand
 - Rajasthan
 - Karnataka
55. Mica is mainly used in :
- food and beverage industry.
 - iron and steel industry.
 - aluminium industry.
 - electrical and electronic industries.
56. According to Koppen's climatic classifications, the Great Northern Plains of India have which one of the following climates ?
- Aw climate
 - Cwg climate
 - Amw climate
 - Dfc climate
57. Which of the following statements about Lachit Borphukan is/are correct ?
- He was a General of the Ahom Force.
 - He is known for his leadership in the Battle of Saraighat.
 - Lachit Borphukan Gold Medal is given to the best cadet at the National Defence Academy.
- Select the correct answer using the code given below :
- 1, 2 and 3
 - 2 and 3 only
 - 1 only
 - 2 only

58. The 4th edition of joint military exercise 'DUSTLIK' between the Indian Army and the Uzbekistan Army was held in :
- Ranikhet
 - Gangtok
 - Pithoragarh
 - Leh
59. Which of the following is India's first privately developed rocket launched by ISRO recently ?
- Skyroot
 - Prarambh
 - Bazoomq
 - Vikram-S
60. Which one among the following villages was recently declared as India's first 24 × 7 solar-powered village ?
- Mawlynnong, Meghalaya
 - Modhera, Gujarat
 - Ziro village, Arunachal Pradesh
 - Malana, Himachal Pradesh
61. Tableaux of which one of the following States was adjudged the best in the Republic Day Parade, 2023 ?
- Uttarakhand
 - Punjab
 - Gujarat
 - Uttar Pradesh
62. Organisms capable of using CO₂ as principal carbon source are called :
- Autotrophs
 - Heterotrophs
 - Parasites
 - Decomposers
63. When yeast cells are O₂ starved, fermentation serves as the source of energy. This results in the production of :
- ATP + CO₂ + Ethanol
 - ATP + O₂ + Pyruvate
 - ATP + CO₂ + Lactic acid
 - ATP + O₂ + Acetaldehyde
64. During a laboratory experiment, a student immerses epidermal leaf peel in a hypertonic solution. After some time, the student examined the cells under a microscope and observed that :
- the cells swelled.
 - the cells were plasmolysed.
 - the cells built up turgor pressure.
 - the cells size was unaffected.

Which one of the following is *not* a **68.** characteristic feature of fungi ?

- (a) Cell wall is made of chitin
- (b) Filamentous mycelium is present
- (c) Can carry out photosynthesis
- (d) Asexual spores are produced

Which one of the following statements about bryophytes is *not* correct ?

- (a) The plant body is a gametophyte.
- (b) They are also called the amphibians of plant kingdom.
- (c) The plant body is attached to the substratum by rhizoids.
- (d) Specialized water-conducting tissues are present.

67. What is the specific purpose of using potassium hydroxide during the saponification process ?

- (a) To obtain soaps which are hard on the skin
- (b) To obtain soaps which are soft on the skin
- (c) To obtain natural fragrance
- (d) To make the saponification very economical

Which one of the following is the correct arrangement of metals in the decreasing order of their reactivity ?

- (a) Iron, Sodium, Silver, Copper
- (b) Silver, Copper, Iron, Sodium
- (c) Sodium, Copper, Silver, Iron
- (d) Sodium, Iron, Copper, Silver

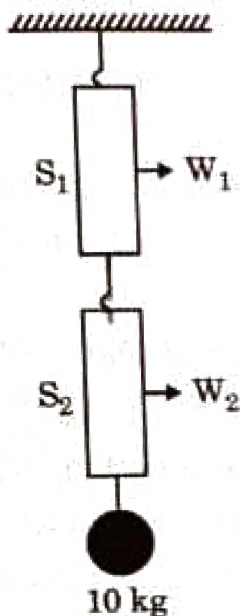
69. Which among the following statements is *not* correct with respect to allotropes of Carbon ?

- (a) Graphite is a good conductor of electricity.
- (b) Diamond is the hardest substance known.
- (c) Fullerene is one of the allotropes of carbon.
- (d) Next to diamond, graphite is the second hardest known substance.

70. Which among the following is the popular method for manufacture of ammonia ?

- (a) Ostwald's process
- (b) Haber-Bosch process
- (c) Electric furnace process
- (d) Electrolysis process

Two identical spring balances S_1 and S_2 are connected one after the other and are held vertically as shown in the figure. A mass of 10 kg is hanging from S_2 . If the readings on S_1 and S_2 are W_1 and W_2 respectively, then :



- (a) $W_1 = 5 \text{ kg}$ and $W_2 = 10 \text{ kg}$
 (b) $W_1 = 10 \text{ kg}$ and $W_2 = 5 \text{ kg}$
 (c) $W_1 = 5 \text{ kg}$ and $W_2 = 5 \text{ kg}$
 (d) $W_1 = 10 \text{ kg}$ and $W_2 = 10 \text{ kg}$

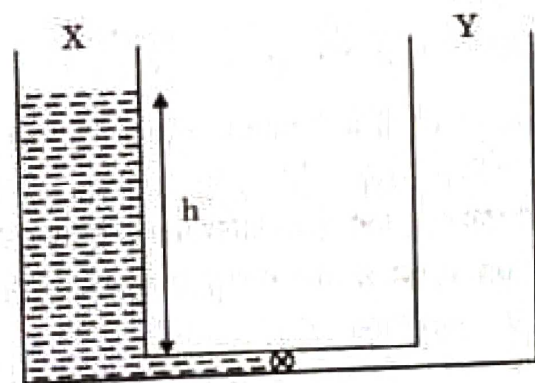
72. A stone is thrown horizontally from the top of a 20 m high building with a speed of 12 m/s. It hits the ground at a distance R from the building. Taking $g = 10 \text{ m/s}^2$ and neglecting air resistance will give :

- (a) $R = 12 \text{ m}$
 (b) $R = 18 \text{ m}$
 (c) $R = 24 \text{ m}$
 (d) $R = 30 \text{ m}$

73. A sphere of volume V is made of a material with lower density than water. While on Earth, it floats on water with its volume $f_1 V$ ($f_1 < 1$) submerged. On the other hand, on a spaceship accelerating with acceleration $a < g$ (g is the acceleration due to gravity on Earth) in outer space, its submerged volume in water is $f_2 V$. Then :

- (a) $f_2 = f_1$
 (b) $f_2 = (1 - \frac{a}{g}) f_1$
 (c) $f_2 > f_1$
 (d) $f_2 = \frac{a}{g} f_1$

74. Two identical containers X and Y are connected at the bottom by a thin tube of negligible volume. The tube has a valve in it, as shown in the figure. Initially container X has a liquid filled up to height h in it and container Y is empty. When the valve is opened, both containers have equal amount of liquid in equilibrium. If the initial (before the valve is opened) potential energy of the liquid is P_1 and the final potential energy is P_2 then :



- (a) $P_1 = P_2$
 (b) $P_1 = 4P_2$
 (c) $P_1 = 2P_2$
 (d) $P_1 = 8P_2$

75. A particle is moving in a circle of radius R with a constant speed v . Its average acceleration over the time when it moves over half the circle is :

- (a) $\frac{v^2}{R}$
- (b) $\frac{\pi v^2}{2R}$
- (c) $\frac{2v^2}{\pi R}$
- (d) 0

76. Two forces of 5.0 N each are acting on a point mass. If the angle between the forces is 60° , then the net force acting on the point mass has magnitude close to :

- (a) 8.6 N
- (b) 4.3 N
- (c) 5.0 N
- (d) 6.7 N

77. Which one of the following is **not** an igneous rock ?

- (a) Granite
- (b) Slate
- (c) Basalt
- (d) Gabbro

78. Which of the following statements is/are correct ?

1. Hypocenter is the point on the surface of the Earth, nearest to the focus.
2. Velocity of earthquake waves is higher in denser materials.
3. P waves move faster and are the first to arrive at the surface of the Earth.

Select the correct answer using the code given below :

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

79. In terms of geological time scale, the quaternary period consists of two epochs. They are :

- (a) Pleistocene and Pliocene
- (b) Holocene and Pleistocene
- (c) Pleistocene and Miocene
- (d) Holocene and Eocene

80. Which one of the following is the correct sequence of arrangement of the given planets in descending order of their density (in gm/cm^3) ?

- (a) Earth > Jupiter > Venus > Saturn
- (b) Jupiter > Earth > Saturn > Venus
- (c) Earth > Venus > Jupiter > Saturn
- (d) Earth > Venus > Saturn > Jupiter

81. Which one of the following is **not** a cold current ?

- (a) Western Australian Current
- (b) Eastern Australian Current
- (c) Benguela Current
- (d) Peru Current

82. The process of Podsolization is predominantly found in :

- (a) Equatorial forest
- (b) Monsoon forest
- (c) Taiga forest
- (d) Mediterranean forest

83. Joint Military exercise 'Keen Sword 23' was conducted between :

- (a) India and Japan
- (b) India and USA
- (c) USA and Japan
- (d) Japan and Taiwan

The Battle of Rezang La, an epic battle in hostile conditions, was fought by the Indian Army in :

- (a) 1948
- (b) 1956
- (c) 1962
- (d) 1972

5. Consider the following statements about 'Exercise Sea Vigil-22' :

1. Its aim is to assess India's preparedness in the domain of Maritime security and coastal defence.
2. Naval forces of USA and Japan also took part in the exercise.

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. Consider the following statements :

1. England is the only country that won the ICC T20 World Cup twice.
2. Virat Kohli is the only player to be adjudged as the Player of the Series in the ICC T20 World Cup twice.

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

87. Who among the following is *not* a recipient of Nobel Prize in Chemistry in 2022 ?

- (a) Carolyn R. Bertozzi ✓
- (b) Benjamin List
- (c) Mortén Meldal ✓
- (d) K. Barry Sharpless

88. Consider the following statements regarding cell wall composition :

- 1. Bacterial cell wall is made of peptidoglycan.
- 2. Fungal cell wall is made of cellulose.
- 3. Animals lack cell wall and have extracellular matrix made up of sugar and proteins.

Select the correct answer using the code given below :

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

89. Which one of the following structures is *not* present in a prokaryotic cell ?

- (a) Cell wall
- (b) Ribosomes
- (c) Nucleus
- (d) Plasma membrane

90. In a plant cell, which one of the following contains their own DNA ?

- (a) Nucleus and Endoplasmic Reticulum
- (b) Ribosome and Golgi apparatus
- (c) Mitochondria and Chloroplast
- (d) Chloroplast and Vacuoles

91. The Counter Insurgency and Jungle Warfare School of Indian Army is situated at :
- Dehradun
 - Vairengte
 - Gulmarg
 - Mhow
92. In the soil-forming regime, which one of the following occurs in a region where evapotranspiration exceeds precipitation significantly ?
- Calcification
 - Laterization
 - Podsolization
 - Gleization
93. Which one of the following is found in the innermost part of the Earth ?
- Conrad discontinuity
 - Moho discontinuity
 - Guttenberg discontinuity
 - Lehmann discontinuity
94. Which of the following tree species is/are found on Himalayas ?
- Oak
 - Rhododendron
 - Rosewood
- Select the correct answer using the code given below :
- 1 only
 - 2 and 3
 - 1 and 3
 - 1 and 2
95. Which one of the following is the lowermost/innermost intrusive igneous rock ?
- Laccolith
 - Batholith
 - Lopolith
 - Phacolith
96. If it is 12 noon in New Delhi, what will be the time in London, UK ?
- 6:30 A.M.
 - 6:30 P.M.
 - 5:30 A.M.
 - 5:30 P.M.
97. Which of the following positions of Sun, Earth and Moon is/are suitable for Spring Tide ?
- SYZYG Y Conjunction
 - SYZYG Y Opposition
 - Quadrature
- Select the correct answer using the code given below :
- 1 only
 - 2 only
 - 1 and 2
 - 1 and 3

98. Which Renaissance artist painted 'The Last Supper' ?
- (a) Michelangelo
 - (b) Donatello
 - (c) Botticelli
 - (d) Leonardo da Vinci
99. Which one of the following European explorer conquered Mexico ?
- (a) Vasco da Gama
 - (b) Bartholomew Diaz
 - (c) Magellan
 - (d) Hernán Cortés
100. Near which one of the following cities in India have large statues of Kushana rulers been discovered ?
- (a) Karnal
 - (b) Ropar
 - (c) Hisar
 - (d) Mathura
101. The Treaty of Yandabo was concluded as part of which one of the following wars ?
- (a) First Anglo-Burmese War
 - (b) Second Anglo-Burmese War
 - (c) Anglo-Kuki War
 - (d) Anglo-Maratha War
102. Plan allocation in agriculture and irrigation as percentage of total plan outlay was highest in :
- (a) Seventh Five-Year Plan
 - (b) Third Five-Year Plan
 - (c) First Five-Year Plan
 - (d) Second Five-Year Plan
103. The UN COP-27 Summit relates to :
- (a) Russia-Ukraine war
 - (b) Terrorism and counter-terrorism
 - (c) Climate change
 - (d) Interpol
104. Which one of the following tribes from India's North-East had the earliest known association with cultivation and production of tea ?
- (a) Khasis
 - (b) Garos
 - (c) Singphos
 - (d) Jayantias

105. By which one of the following amendments, was Article 51A, relating to the Fundamental Duties, inserted into the Constitution of India ?

- (a) The Constitution (42nd Amendment) Act
- (b) The Constitution (44th Amendment) Act
- (c) The Constitution (85th Amendment) Act
- (d) The Constitution (92nd Amendment) Act

106. Which one of the following statements is true ?

- (a) The force of gravity of the Earth on the Moon is greater than the force of gravity of the Moon on the Earth.
- (b) The force of gravity of the Moon on the Earth is greater than the force of gravity of the Earth on the Moon.
- (c) The force of gravity of the Earth on the Moon and of the Moon on the Earth are equal in magnitude and are in the same direction.
- (d) The force of gravity of the Earth on the Moon and of the Moon on the Earth are equal in magnitude but are in opposite directions.

107. An electric bulb is rated as 220 V and 80 W. When it is operated on 110 V, the power rating would be :

- (a) 80 W
- (b) 60 W
- (c) 40 W
- (d) 20 W

108. In the dispersion of white light by a common glass prism, which one among the following is correct ?

- (a) Red light deviates the most because red light has highest speed in prism
- (b) Blue light deviates the most because blue light has highest speed in prism
- (c) Red light deviates the most because red light has lowest speed in prism
- (d) Blue light deviates the most because blue light has lowest speed in prism

109. Which one among the following is true for the speed of sound in a given medium ?

- (a) Speed of sound remains same at all frequencies
- (b) Speed of sound is faster at higher frequencies
- (c) Speed of sound is slower at higher frequencies
- (d) Speed of sound is slower at higher wavelengths

110. Which one of the following telescopes contains only mirrors ?

- (a) Galilean telescope
- (b) Keplerian telescope
- (c) Newtonian telescope
- (d) Schmidt telescope

11. One advantage of sexual reproduction over asexual reproduction is that it helps species to survive over long evolutionary time. This is because sexual reproduction produces :
- more offspring in each reproductive cycle.
 - robust and healthy offspring.
 - genetically similar offspring.
 - more variation in offspring.
112. Which one of the following structures or components is *not* always present in living cells ?
- Cell wall
 - Plasma membrane
 - Cytoplasm
 - Genetic material
113. Browning of the chopped apple can be minimized by :
- using table sugar.
 - preserving in a container.
 - using lemon juice.
 - using milk of magnesia.
114. Which of the hydrocarbons are arranged as per the increasing order of their boiling points ?
- Methane, Butane, Propane, Heptane
 - Propane, Butane, Pentane, Octane
 - Propane, Butane, Heptane, Methane
 - Octane, Ethane, Methane, Propane
115. Which one of the following apparatus is used for separating benzene and water mixture ?
- Round bottom flask
 - Conical flask
 - Separating funnel
 - Dean and Stark apparatus
116. An iron nail dipped in copper sulphate solution turns brown. This is due to which one of the following types of reactions ?
- Addition reaction
 - Decomposition reaction
 - Substitution reaction
 - Displacement reaction
117. Among the following, which is *not* the correct method for keeping the curd ?
- Keeping in stainless steel vessel
 - Keeping in copper vessel
 - Keeping in plastic vessel
 - Keeping in glass vessel
118. Toothpaste prevents tooth decay by :
- neutralizing the excess acidity.
 - means of emulsification.
 - the action of fluoride.
 - making a coat of calcium over the teeth surface.

119. Freedom fighter Kanaklata Barua was martyred in :

- (a) Sepoy Mutiny
- (b) Quit India Movement
- (c) Non-Cooperation Movement
- (d) Peasant Uprising of 1893 - 1894

120. Which one among the following statements about the Mansabdari system is correct ?

- (a) All army troopers were allotted mansabs.
- (b) Mansabs were usually assigned on the basis of ancestry.
- (c) Position and salary of mansabdars were indicated by a numerical designation called zat.
- (d) Mansabdars were never paid in cash.

121. Which Governor General of Bengal underwent impeachment proceedings in the British Parliament ?

- (a) Robert Clive
- (b) Henry Vansittart
- (c) Warren Hastings
- (d) Lord Cornwallis

122. Who among the following composed the 'Prayag Prashasti' of Samudragupta ?

- (a) Harishena
- (b) Chand Bardai
- (c) Vishakhadatta
- (d) Kalidasa

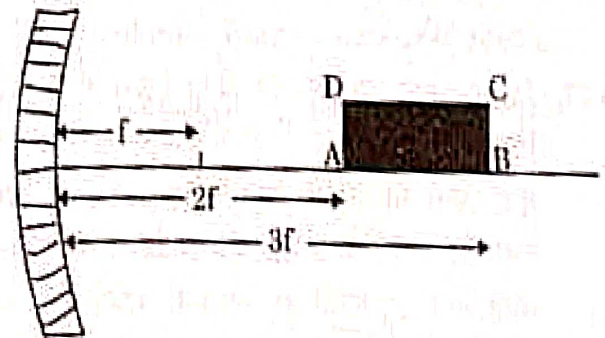
123. Which one of the following kingdoms was founded by the two brothers Harihar and Bukka ?

- (a) Bahmani
- (b) Vijayanagara
- (c) Malwa
- (d) Maratha

124. At which one of the following places did the Danes establish their settlement in India ?

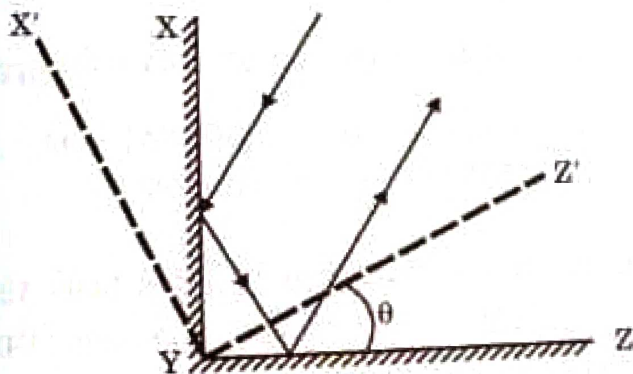
- (a) Chinsura
- (b) Karaikal
- (c) Mabe
- (d) Tranquebar

125. A rectangle ABCD is kept in front of a concave mirror of focal length f with its corners A and B being, respectively, at distances $2f$ and $3f$ from the mirror with AB along the principal axis as shown in the figure. It forms an image A'B'C'D' in front of the mirror. What is the ratio of B'C' to A'D' ?



- (a) 1
- (b) 2
- (c) $\frac{1}{2}$
- (d) $\frac{2}{3}$

126. Shown in the figure are two plane mirrors XY and YZ ($XY \perp YZ$) joined at their edge. Also shown is a light ray falling on one of the mirrors and reflected back parallel to its original path as a result of this arrangement. The two mirrors are now rotated by an angle θ to their new position X'YZ', as shown. As a result the new reflected ray is at an angle α from the original reflected ray. Then :



127. A railway wagon (open at the top) of mass M_1 is moving with speed v_1 along a straight track. As a result of rain, after some time it gets partially filled with water so that the mass of the wagon becomes M_2 and speed becomes v_2 . Taking the rain to be falling vertically and water stationary inside the wagon, the relation between the two speeds v_1 and v_2 is :

- (a) $v_1 = v_2$
 (b) $\frac{1}{2} M_1 v_1^2 < \frac{1}{2} M_2 v_2^2$
 (c) $M_1 v_1 = M_2 v_2$
 (d) $M_1 v_1 < M_2 v_2$

128. Which one of the following statements is *not* true for a flute, a musical instrument ?

- (a) Momentum of waves on the blowing jet determines the loudness of the produced note.
 (b) Arrival time of the waves on the blowing jet determines the pitch of the produced note.
 (c) Sound comes from a vibrating column of air inside the flute.
 (d) Sound comes from a vibrating column of air inside as well as outside the flute.

129. A positive charge is moving towards south in a space where magnetic field is pointing in the north direction. The moving charge will experience :

- (a) a deflecting force towards north direction.
 (b) a deflecting force towards east direction.
 (c) a deflecting force towards west direction.
 (d) no deflecting force.

130. Which one of the following is *not* a main greenhouse gas ?

- (a) Water vapour
 (b) Oxygen
 (c) Carbon dioxide
 (d) Methane

For manufacturing of glass, which among the following is used as a source of silica ?

- (a) Fine clay soil
- (b) Wood powder
- (c) Coconut shell
- (d) Sand

Which among the following is the correct arrangement of halogens in the increasing order of their oxidizing nature ?

- (a) F, Cl, Br, I
- (b) Cl, Br, F, I
- (c) Br, I, Cl, F
- (d) I, Br, Cl, F

3. Copper sulphate crystals available in the market are blue coloured crystals. By careful heating, they turn to white colour. Which one of the following is responsible for the blue colour ?

- (a) Oxygen
- (b) Nitrogen
- (c) Water
- (d) Hydrogen

34. Equal volume of all gases, when measured at the same temperature and pressure, contain an equal number of particles. Who proposed the above law ?

- (a) Charles
- (b) Boyle
- (c) Avogadro
- (d) Lussac

135. Airbags work on the principle of a chemical reaction triggered by the impact producing a gaseous product that causes a sudden volume change. Which one among the following chemical conversions is responsible for this ?

- (a) Sodium azide into nitrogen gas
- (b) Solid carbon dioxide into gaseous carbon dioxide
- (c) Carbon dioxide into carbon monoxide
- (d) Sudden conversion of gaseous carbon dioxide into carbon monoxide

136. Which one among the following districts of Eastern India held a referendum in 1947 to decide whether or not to join Pakistan ?

- (a) Sylhet
- (b) Goalpara
- (c) Cachar
- (d) Jalpaiguri

137. Which one of the following statements about Rabatak inscription is *not* correct ?

- (a) It throws important light on Kushana genealogy.
- (b) It refers to Kanishka as 'a king of kings and a son of God'.
- (c) The 23-line inscription is written in Gandhari language.
- (d) It mentions names of States which were part of Kanishka's empire.

138. Who among the following was the author of the famous Sanskrit work 'Mrichchhakatika'?

- (a) Kalidasa
- (b) Bhasa
- (c) Valmiki
- (d) Shudraka

139. Yashovarman was ruler of which one of the following kingdoms?

- (a) Kannauj
- (b) Mewar
- (c) Marwar
- (d) Kalinga

140. Which one among the following rulers established Pataliputra as the capital of the Magadhan Empire?

- (a) Bimbisara
- (b) Bindusara
- (c) Ajatashatru
- (d) Ashoka

141. Which one of the following astronomers proved that the Earth and other planets revolve around the Sun?

- (a) Copernicus
- (b) Kepler
- (c) Galileo
- (d) Newton

142. Sand falls vertically on a conveyor belt at a rate of 0.1 kg/s. In order to keep the belt moving at a uniform speed of 2 m/s, the force required to be applied on the belt is:

- (a) 0 N
- (b) 0.2 N
- (c) 1.0 N
- (d) 2.0 N

143. The power required to lift a mass of 8.0 kg up a vertical distance of 4 m in 2 s is (taking acceleration due to gravity as 10 m/s^2):

- (a) 80 W
- (b) 160 W
- (c) 320 W
- (d) 640 W

144. One block of 2.0 kg mass is placed on top of another block of 3.0 kg mass. The coefficient of static friction between the two blocks is 0.2. The bottom block is pulled with a horizontal force F such that both the blocks move together without slipping. Taking acceleration due to gravity as 10 m/s^2 , the maximum value of the frictional force is:

- (a) 50 N
- (b) 30 N
- (c) 4 N
- (d) 10 N

45. A mass is attached to a spring that hangs vertically. The extension produced in the spring is 6 cm on Earth. The acceleration due to gravity on the surface of the Moon is one-sixth of its value on the surface of the Earth. The extension of the spring on the Moon would be :

- (a) 6 cm
- (b) 1 cm
- (c) 0 cm
- (d) 36 cm

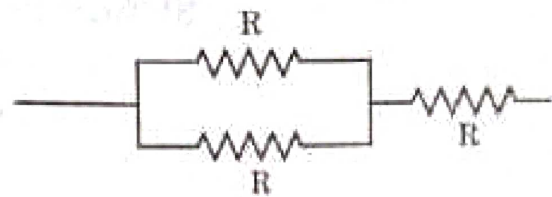
146. Which one of the following is an example of Second Class Lever ?

- (a) A pair of scissors
- (b) A bottle opener
- (c) A cricket bat
- (d) A bow and arrow

147. In an electric circuit, a wire of resistance 10Ω is used. If this wire is stretched to a length double of its original value, the current in the circuit would become :

- (a) half of its original value.
- (b) double of its original value.
- (c) one-fourth of its original value.
- (d) four times of its original value.

148. What is the total resistance in the following circuit element ?



- (a) $R/2$
- (b) $3R$
- (c) $3R/2$
- (d) $2R/3$

149. Which of the following scheme(s) is/are included under *Bharatmala Pariyojana* ?

1. Develop the road connectivity to border areas
2. Development of coastal roads
3. Improvement in the efficiency of National Corridors

Select the correct answer using the code given below :

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

150. Deendayal Port was earlier known as :

- (a) Paradip Port
- (b) Tuticorin Port
- (c) Kandla Port
- (d) Visakhapatnam Port