

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

SERIES : I

QUESTION BOOKLET

Subjects : English, General Knowledge & Aptitude and Chemistry

Full Marks : 300

Time Allowed : 2½ Hours

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This Booklet contains **150 questions** to be answered in a separate OMR Answer Sheet using Black Ballpoint Pen in the following three Parts :

Part—A : English	: 50 questions
Part—B : General Knowledge & Aptitude	: 50 questions
Part—C : Chemistry	: 50 questions

2. **All** questions are compulsory.
3. You will be supplied the Answer Sheet separately by the Invigilator. You must complete the details of particulars asked for.
4. Answer must be shown by completely blackening the corresponding circle in the Answer Sheet against the relevant question number by Black Ballpoint Pen. OMR Answer Sheet without marking Series shall not be evaluated.

Example :

Suppose the following question is asked :

The Capital of Meghalaya is

- (A) Guwahati
(B) Kohima
(C) Shillong
(D) Delhi

You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :

(A) (B) (C) (D)

In the above illustration, if your chosen response is alternative (C), i.e., Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ballpoint Pen only as below :

(A) (B) (C) (D)

The example shown above is the only correct method of answering.

5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
8. No Rough Work is to be done on the Answer Sheet. Space for Rough Work has been provided in the Question Booklet.

SEAL

PART—A : ENGLISH

(Marks : 100)

Each question carries 2 marks

Section—I

Directions (Q. Nos. 1–10) : Read the following passage and answer the questions given below, following the instructions.

To Pliny the Elder, the Roman savant, books were the ultimate repository of knowledge. "Our civilization depends on the use of paper," he wrote nearly 2000 years ago. However, Pliny was largely blind to another vast treasury of knowledge. Employing sharp styli generally reserved for wax tablets, some Romans scratched graffiti into plastered walls of private residences. Others hired stonecutters to engrave their ramblings on tombs and city walls. Collectively, they left behind an astonishing trove of pop culture—birth announcements, magical spells, obituaries and epigrams. "Oh wall" noted one citizen of Pompeii "I am surprised you have not collapsed and fallen, seeing that you support the loathsome scribbles of many writers."

More than 180000 of these inscriptions are now catalogued in the Corpus Inscriptionum Latinarum, a mammoth database maintained by the Berlin-Brandenburg Academy of Sciences and Humanities. It was conceived in 1853 by Theodor Mommsen, a German historian who dispatched a small army of epigraphists to collect graffiti from ruins of the length and breadth of the Roman empire, from the garrisons of Britain to the temples of Egypt. Researchers still add up to 500 inscriptions each year to the collection, mostly from Spanish and other Mediterranean resorts where excavations for hotel and restaurant foundations reveal new epigraphic treasures.

Packed with surprising details, the corpus throws open a large window on Roman Society and reveals the ragged edges of ordinary life—from the grief of parents over

the loss of a child and lover's lines for their beloved. This world is achingly familiar, yet strangely alien, a society that closely parallels our own in its heedless pursuit of pleasure and yet remains at odds with our cherished values of human rights and dignity.

Choose the appropriate antonyms of the following :

1. Savant
 - (A) Outstanding
 - (B) Mediocre
 - (C) Birdbrain
 - (D) Shovel
2. Astonishing
 - (A) Overwhelming
 - (B) Mundane
 - (C) Placid
 - (D) Calm
3. Loathsome
 - (A) Agreeable
 - (B) Limp
 - (C) Slump
 - (D) Firm
4. Heedless
 - (A) Poise
 - (B) Hedonistic
 - (C) Hardy
 - (D) Considerate
5. Cherished
 - (A) Abhorred
 - (B) Calamitous
 - (C) Apostasy
 - (D) Chastises

Choose the appropriate meaning of the words or phrases given below in the specific context of the passage.

6. Repository of knowledge

- (A) Playground of wisdom
- (B) Well of wisdom
- (C) Garden of wisdom
- (D) Stage of wisdom

7. Epigrams

- (A) Aphorisms
- (B) Cache
- (C) Aphonic
- (D) Taciturn

8. Mammoth databases

- (A) Chronicle
- (B) An ancient library
- (C) Logbook
- (D) Colossal archive

9. Heedless pursuit

- (A) Snuggle
- (B) Sniff
- (C) Snuffer
- (D) Squandering

10. Ragged edges of ordinary life

- (A) A rough life
- (B) An adventurous spree
- (C) Rough spots of daily living
- (D) Grain and hair of life

Section—II

Directions (Q. Nos. 11-20) : Choose the correct meaning for the words or phrases given below.

11. To give one's consent

- (A) Accede
- (B) Exceed
- (C) Recede
- (D) Impede

12. Disconnected from others

- (A) Connection
- (B) Discreet
- (C) Disburse
- (D) Discrete

13. Short speech or poem at the end of a play or book

- (A) Epilogue
- (B) Prologue
- (C) Monologue
- (D) Anecdote

14. A person of strong conviction or prejudice, especially in matters of religion

- (A) Hedonist
- (B) Polyglot
- (C) Zealot
- (D) Glutton

15. A statement that is absolutely clear

- (A) Clean
- (B) Ambiguous
- (C) Unequivocal
- (D) Non-descript

16. Censure

- (A) Ensure
- (B) Criticise
- (C) Assure
- (D) Examine

17. Ostensible

- (A) Apparent
- (B) Elaborate
- (C) Traditional
- (D) Intricate

18. Slipshod

- (A) Vulgar
- (B) Careless
- (C) Commonplace
- (D) Retaliatory

19. Pensive

- (A) Habitually tardy
- (B) Confident
- (C) Given to quiet reflection
- (D) In a foul mood

20. Culpable

- (A) Correct
- (B) Guilty
- (C) Right
- (D) Innocent

Section—III

Directions (Q. Nos. 21-35) : Choose the correct option to fill in the gaps.

21. Vaguely _____ the back of his mind he had always believed that the jungle was a place full of food.

- (A) in
- (B) at
- (C) through
- (D) on

22. Henry _____ the dark liquid, trying not to taste it.

- (A) took
- (B) swallowed
- (C) gulped
- (D) drank

23. He was married to a lady _____ exceptional charm and beauty.

- (A) of
- (B) with
- (C) in
- (D) through

24. All jobs are respectable, _____ of their nature.

- (A) irrelevant
- (B) immaterial
- (C) inclusive
- (D) irrespective

25. The flash of the torch _____ the cobra.

- (A) exposed
- (B) displayed
- (C) disclosed
- (D) revealed

26. He was frightened ____.

- (A) to be killed
- (B) to being killed
- (C) for being killed
- (D) of being killed

27. Criticism that tears down without suggesting areas of improvement is not ____ and should be avoided.

- (A) constructive
- (B) mandatory
- (C) sagacious
- (D) wise

28. If I were you, I ____ be careful with my words.

- (A) will
- (B) would
- (C) shall
- (D) should

29. The magician ____ the man into a rabbit.

- (A) transformed
- (B) made
- (C) transfigured
- (D) converted

30. You must work hard now to ____ for lost time.

- (A) fill
- (B) pay
- (C) compensate
- (D) recover

31. His ____ behaviour shows that he is honest.

- (A) forthright
- (B) tactful
- (C) courteous
- (D) good

32. We cannot ____ such a brutal act of violence.

- (A) pardon
- (B) consider
- (C) neglect
- (D) commit

33. Although the broker had warned him that the stock was a ____ investment, he insisted on buying a thousand shares.

- (A) significant
- (B) vulnerable
- (C) prudent
- (D) risky

34. The Education Minister emphasised the need to discover and develop each student's ____.

- (A) potential
- (B) inabilities
- (C) incompetencies
- (D) strengths

35. The weather in the far north is not ____ it is down south.

- (A) like humid as
- (B) humid as
- (C) as humid as
- (D) so humid that

Section—IV

Directions (Q. Nos. 36–50) : In each of the following sentences, a part of the sentence is underlined. The sentence is followed by different ways of writing the underlined part. Answer Choice (A) repeats the original and the other answers vary. If you think that the original phrase is best, choose (A). If you think one of the other choices is the best, select that option.

36. What happens to all those passengers on the ship was not known.
- (A) What happens
(B) Whatever has happened
(C) What happened
(D) What had happened
37. I was shocked to learn that no one was knowing where the files were kept.
- (A) was knowing
(B) knew
(C) had known
(D) had been knowing
38. The two brothers were so much similar in appearance that nobody believed that they were twins.
- (A) so much similar in
(B) so much similar at
(C) so different in
(D) so different at
39. If I would have realised the nature of the job earlier, I would not have accepted it.
- (A) If I would have
(B) In case I would have
(C) Had I
(D) Only if I
40. On firm ground the tent had held in place by pegs driven into the ground.
- (A) had held
(B) was held
(C) had been held
(D) will hold
41. I met two women whom, I believe were hospital nurses.
- (A) whom, I believe
(B) who, I believe
(C) each, I believe
(D) whom, I am sure
42. She was more beautiful than either of her three sisters.
- (A) either of her three sisters
(B) any of her three sisters
(C) all of her three sisters
(D) most of the three sisters

43. He has been venturing into areas that he had shunned.

- (A) has been venturing
- (B) may ventured
- (C) venturing
- (D) had venture

44. Although completely wither the botanists were able to determine from what remained of the flower that the species was very rare.

- (A) Although completely wither
- (B) Although it was completely withered
- (C) While it was withered
- (D) While it withered completely

45. The Principal told me don't enter his office without permission.

- (A) don't enter
- (B) not to be entered
- (C) not to enter
- (D) that I should not be entering

46. The advertisement is offering a reward for information relating to the activities of the terrorists.

- (A) relating to the
- (B) which is relating
- (C) related with
- (D) relation to

47. When the manager came to know of his fraudulent deed, he ordered for his immediate dismissal.

- (A) he ordered for his immediate dismissal
- (B) he immediately ordered to dismiss him
- (C) he ordered dismissing him immediately
- (D) he ordered his immediate dismissal

48. Finished his breakfast, he started to attend to his daily chores.

- (A) Finished his breakfast
- (B) His breakfast, having finished
- (C) Having finished his breakfast
- (D) After having finish

49. Since young girls were not expected to participate in sports, so they were never seriously trained to be athletes.

- (A) sports, so they
- (B) sports, and they
- (C) sports, and that
- (D) sports, they

50. You have to collect as much stamps as possible for the exhibition.

- (A) as much stamps
- (B) as many stamps
- (C) as several stamps
- (D) as many more

PART—B : GENERAL KNOWLEDGE & APTITUDE

(Marks : 100)

Each question carries 2 marks

51. Who invented mobile phone?
- (A) Graham Bell
(B) Martin Cooper
(C) Edison
(D) Larry Page
52. The International Human Rights Day is observed on
- (A) 10th December
(B) 24th October
(C) 25th November
(D) None of the above
53. According to a recent WHO report, 188.3 million people in India suffer from which health condition, while only 37% get diagnosed for it?
- (A) Diabetes
(B) Hypertension
(C) Arthritis
(D) Asthma
54. The 'Hiroshima AI Process', which was seen in the news, is associated with which bloc?
- (A) SAARC
(B) G-20
(C) G-7
(D) ASEAN
55. Which Indian actor has been recognized as the National Icon for voter awareness for the Election Commission of India (ECI)?
- (A) Ranveer Singh
(B) Rajkummar Rao
(C) Vidya Balan
(D) Rajinikanth
56. 'Meendum Manjappai' is a scheme launched by which Indian State, to curb plastic usage?
- (A) Kerala
(B) Odisha
(C) Andhra Pradesh
(D) Tamil Nadu
57. The Mayurakshi River flows through which Indian State?
- (A) Jharkhand
(B) Assam
(C) Karnataka
(D) Madhya Pradesh
58. Which country is the host of the 'AI Safety Summit 2023'?
- (A) USA
(B) UK
(C) Australia
(D) India

59. What is the expansion of 'SET' planes, which were recently permitted by DGCA?
- Single Engine Turbine (SET) planes
 - Speed Enhanced Turbine (SET) planes
 - Steel Engineered Turbine (SET) planes
 - Steel Engine Turbine (SET) planes
60. Which Indian city has been added to the 'UNESCO Creative Cities Network', in 'Literature' category?
- Madurai
 - Kozhikode
 - Mysuru
 - Kurnool
61. Srihari Nataraj, who is seen in the news, is associated with which sports?
- Cricket
 - Swimming
 - Chess
 - Tennis
62. Which Indian State bagged the Global Responsible Tourism Award 2023?
- Assam
 - Goa
 - Uttarakhand
 - Kerala
63. Recently, scientists had engineered *E. coli* bacteria to generate electricity from which material?
- Wastewater
 - Sandpaper
 - Air
 - Seawater
64. Lampreys, which are seen in the news, belong to which species?
- Fish
 - Gecko
 - Spider
 - Bee
65. A 40-member taskforce with various Indian companies and startups was formed to challenge which company on billing?
- Paytm
 - Google
 - Amazon
 - Apple
66. The 2023 Nobel Prize in Physics was given to three scientists for research in which field?
- Electrons in flashes of light
 - Photons in flashes of light
 - Neutrons in flashes of light
 - Phyttons in flashes of light
67. Which institution conducts the Open Market Operations (OMOs) sales of government securities in India?
- SEBI
 - NITI Aayog
 - Ministry of Finance
 - RBI

68. Which country's Golf Association Museum considered Shillong Golf Course as the 'Gleneagles of the East'?
- (A) UK
(B) USA
(C) France
(D) South Korea
69. Name the world's longest sandstone cave.
- (A) Krem Puri, Mawsynram
(B) Krem Wah Ryngho—Khongrang
(C) Krem Tynggheng Diengiem
(D) Krem Liat Prah, Jaintia Hills
70. Which of the following is **not** a classical dance of India?
- (A) Kathak
(B) Sattriya
(C) Manipuri
(D) Bhangra
71. What was the forecast of India's economic growth for FY 23, as per the Asian Development Bank?
- (A) 6.2 percent
(B) 7 percent
(C) 8 percent
(D) 9.2 percent
72. Which month of the year 2023 recorded the hottest week ever on the Earth?
- (A) January
(B) May
(C) June
(D) July
73. As of January 2023, which category of the direct tax mopped up the highest collection?
- (A) Income tax
(B) Corporate tax
(C) GST
(D) Capital gains tax
74. Which country has been the most supportive of Russia's invasion of Ukraine?
- (A) Belarus
(B) Syria
(C) Iran
(D) Cuba
75. Which Article enables citizens to approach the Supreme Court if they believe that their fundamental rights have been denied?
- (A) Article 14
(B) Article 23
(C) Article 32
(D) Article 27
76. Find the statement that must be true according to the given information :
- On weekends, Mr. Das spends many hours working in his vegetable and flower gardens. Mrs. Das spends her free time reading and listening to classical music. Both Mr. Das and Mrs. Das like to cook.
- (A) Mr. Das enjoys planting and growing vegetables.
(B) Mr. Das does not like classical music.
(C) Mrs. Das cooks the vegetables that Mr. Das grows.
(D) Mrs. Das enjoys reading nineteenth century novels.

77. Arrange the words given below in a meaningful sequence :

1. Family
2. Community
3. Member
4. Locality
5. Country

- (A) 3, 1, 2, 5, 4
(B) 3, 1, 2, 4, 5
(C) 3, 1, 4, 2, 5
(D) 3, 1, 4, 5, 2

78. Look at the following series :

8, 6, 9, 23, 87, _____

What number should come next?

- (A) 128
(B) 226
(C) 324
(D) 429

79. Find out the alternative which will replace the question mark.

Eye : Myopia :: Teeth : ?

- (A) Pyorrhoea
(B) Cataract
(C) Trachoma
(D) Eczema

80. Which word **does not** belong with the others?

- (A) Sourdough
(B) Rye
(C) Pumpnickel
(D) Loaf

81. A farmer travelled a distance of 61 km in 9 hours. He travelled partly on foot @ 4 km/hr and partly on bicycle @ 9 km/hr. The distance travelled on foot is

- (A) 14 km
(B) 15 km
(C) 16 km
(D) 17 km

82. In how many different ways can the letters of the word 'CORPORATION' be arranged so that the vowels always come together?

- (A) 810
(B) 1440
(C) 2880
(D) 50400

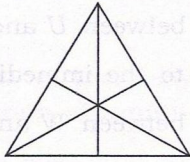
83. In a certain school, 20% of the students are below 8 years of age. The number of students above 8 years of age is $\frac{2}{3}$ of the number of students of 8 years of age which is 48. What is the total number of students in the school?

- (A) 150
(B) 100
(C) 72
(D) 80

84. There is 60% increase in an amount in 6 years at simple interest. What will be the compound interest of ₹12,000 after 3 years at the same rate?

- (A) ₹ 2,160
(B) ₹ 3,120
(C) ₹ 3,972
(D) ₹ 6,240

85. Find the number of triangles in the given figure :



- (A) 16
(B) 13
(C) 9
(D) 7
86. Find the odd one in the following series :

331, 482, 551, 263, 383, 362, 284

- (A) 263
(B) 383
(C) 331
(D) 551
87. The price of 10 chairs is equal to that of 4 tables. The price of 15 chairs and 2 tables together is ₹ 4,000. The total price of 12 chairs and 3 tables is
- (A) ₹ 3,500
(B) ₹ 3,750
(C) ₹ 3,840
(D) ₹ 3,900
88. Present ages of Sameer and Anand are in the ratio of 5 : 4 respectively. Three years hence, the ratio of their ages will become 11 : 9 respectively. What is Anand's present age in years?
- (A) 24
(B) 27
(C) 40
(D) Cannot be determined

89. In a 100 m race, A beats B by 10 m and C by 13 m. In a race of 180 m, B will beat C by

- (A) 5.4 m
(B) 4.5 m
(C) 5 m
(D) 6 m

90. Find the word that names a necessary part of the underlined word :

Itinerary

- (A) Map
(B) Route
(C) Travel
(D) Guidebook

91. Find the correctly spelt word.

- (A) Chancelary
(B) Chancellery
(C) Chancelry
(D) Chancellary

92. If TOUR is written in a certain code as 1234, CLEAR as 56784 and SPARE as 90847, what will be the 5th digit for SCULPTURE in that same code?

- (A) 3
(B) 4
(C) 6
(D) 0

93. If the letters GBOQX stand for the word HAPPY, which of the following stand for the word CROSS?

- (A) BSPTR
- (B) BNSTR
- (C) BSNTR
- (D) BSNRT

Directions (Q. Nos. 94-97) :

P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre :

1. P is second to the right of T who is the neighbour of R and V.
2. S is not the neighbour of P.
3. V is the neighbour of U.
4. Q is not between S and W. W is not between U and S.

94. Which two of the following are **not** neighbours?

- (A) RV
- (B) UV
- (C) RP
- (D) QW

95. Which one is immediate right to the V?

- (A) P
- (B) U
- (C) R
- (D) T

96. Which of the following is correct?

- (A) P is to the immediate right of Q
- (B) R is between U and V
- (C) Q is to the immediate left of W
- (D) U is between W and S

97. What is the position of S?

- (A) Between U and V
- (B) Second to the right of P
- (C) To the immediate right of W
- (D) Data inadequate

98. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y, is P?

- (A) North
- (B) South
- (C) South-East
- (D) None of the above

99. Choose the word which is different from the rest.

- (A) Kiwi
- (B) Eagle
- (C) Emu
- (D) Ostrich

100. What is the product of all the numbers in the dial of a telephone?

- (A) 158480
- (B) 159450
- (C) 159480
- (D) None of the above

PART—C : CHEMISTRY

(Marks : 100)

Each question carries 2 marks

- 101.** Which law of thermodynamics dictates the direction of a natural process?
- (A) First law
(B) Second law
(C) Third law
(D) Zeroth law
- 102.** The correct order of solubility in aqueous medium is
- (A) $\text{CuS} > \text{ZnS} > \text{Na}_2\text{S}$
(B) $\text{Na}_2\text{S} > \text{CuS} > \text{ZnS}$
(C) $\text{ZnS} > \text{Na}_2\text{S} > \text{CuS}$
(D) $\text{Na}_2\text{S} > \text{ZnS} > \text{CuS}$
- 103.** Phenol can be converted into salicylic acid using
- (A) CO_2 and alkali under pressure
(B) CCl_4 and alkali
(C) CHCl_3 in alkali followed by oxidation
(D) All of the above
- 104.** The decreasing order of stability of carbanion is
- (A) benzyl > diphenylmethyl > triphenylmethyl
(B) diphenylmethyl > benzyl > triphenylmethyl
(C) triphenylmethyl > diphenylmethyl > benzyl
(D) triphenylmethyl > benzyl > diphenylmethyl
- 105.** What type of defect occurs due to the displacement of an ion?
- (A) Schottky defect
(B) Line defect
(C) Frenkel defect
(D) Vacancy defect
- 106.** Water pollution is indicated by the
- (A) amount of nitrogen
(B) amount of oxygen
(C) amount of hydrogen
(D) amount of BOD
- 107.** What is the percentage of gold contained in 18-carat gold?
- (A) 75%
(B) 55%
(C) 18%
(D) 82%
- 108.** The entropy of an isolated system continuously _____ and becomes _____ at the state of equilibrium.
- (A) decreases, minimum
(B) increases, maximum
(C) increases, minimum
(D) decreases, maximum

109. The best picture quality will be delivered by which of the following televisions?
- LCD
 - 3D
 - Plasma
 - OLED
110. PCl_5 exists but NCl_5 does not, because
- NCl_5 is unstable
 - nitrogen is highly inert
 - the p subshell in nitrogen atom is very small
 - nitrogen atom has no vacant d subshell
111. The reaction of benzene with acetylchloride in presence of anhydrous aluminium chloride gives
- toluene
 - acetophenone
 - benzophenone
 - phenol
112. Polymorphism may be defined as
- the existence of substance in various states
 - the existence of substance in more than one gaseous modification
 - the existence of substance in more than one liquid modification
 - the existence of substance in more than one solid modification
113. The maximum number of electrons that can be associated with the quantum numbers $n = 3$, $l = 1$ and $m = -1$ is
- 2
 - 4
 - 6
 - 10
114. The vapor pressure of a solution containing a non-volatile solute is directly proportional to the
- molality of the solvent
 - molarity of the solvent
 - mole fraction of the solvent
 - mole fraction of the solute
115. The process of coating iron or steel sheet with a thin coat of zinc to prevent iron from rusting is called
- tinning
 - galvanization
 - metal cladding
 - electroplating
116. Contact lenses for the eyes are made up of
- polymethylmethacrylate
 - polypropylene
 - polystyrene
 - unsaturated polyester

117. The acid strength of oxoacids of halogens is in the order
- HOF > HOCl > HOBr > HOI
 - HOI > HOBr > HOCl > HOF
 - HOI > HOCl > HOBr > HOF
 - HOCl > HOBr > HOI > HOF
118. Amongst the following species, which one will have the highest bond order?
CN⁺, CN⁻, CN and NO
- CN⁺
 - CN⁻
 - CN
 - NO
119. Which of the following is **not** correct?
- ΔG is zero for a reversible reaction
 - ΔG is negative for a spontaneous reaction
 - ΔG is positive for a spontaneous reaction
 - ΔG is positive for a non-spontaneous reaction
120. The sweetening agent mainly used by a diabetic patient is
- sucrose
 - aspartame
 - glucose
 - alanine
121. Which of the following sets of oxides is **not** amphoteric?
- V₂O₅, Cr₂O₃
 - Mn₂O₇, CrO₃
 - CrO, V₂O₄
 - V₂O₅, V₂O₄
122. How many ions are produced by the complex [Co(NH₃)₆]Cl₂?
- 6
 - 2
 - 3
 - None of the above
123. Hydrogen bomb is based on
- nuclear fission
 - nuclear fusion
 - Both (A) and (B)
 - displacement reaction
124. The class of medicinal products used to treat stress is
- tranquilizers
 - analgesics
 - antiseptics
 - antihistamines
125. What type of colloidal solution is fog?
- Gas in liquid
 - Solid in gas
 - Gas in gas
 - Liquid in gas

126. When chloropropane is treated with alcoholic KOH, an alkene is formed. The reaction is
- dehydration
 - elimination
 - nucleophilic substitution
 - electrophilic substitution
127. Michealis-Menten kinetics describes the relationship between
- enzyme concentration and substrate concentration
 - enzyme concentration and product concentration
 - enzyme concentration and reaction rate
 - substrate concentration and reaction rate
128. The stability of alkali metal chlorides follows the order
- $\text{LiCl} > \text{KCl} > \text{NaCl} > \text{CsCl}$
 - $\text{CsCl} > \text{KCl} > \text{NaCl} > \text{LiCl}$
 - $\text{NaCl} > \text{KCl} > \text{LiCl} > \text{CsCl}$
 - $\text{KCl} > \text{CsCl} > \text{NaCl} > \text{LiCl}$
129. The Cannizzaro reaction of benzaldehyde involves an
- intramolecular shift of proton
 - intramolecular shift of hydride
 - intermolecular shift of proton
 - intermolecular shift of hydride
130. TiO_2 is commonly present in
- vanishing cream
 - sunscreen cream
 - ophthalmic cream
 - antiseptic cream
131. Which of the following mixtures is used by asthma patients for respiration?
- O_2 and N_2O
 - O_2 and CO
 - O_2 and NH_3
 - O_2 and He
132. Compounds containing a chiral carbon show which of the following?
- Metamerism
 - Mesomerism
 - Enantiomerism
 - Functional isomerism
133. Which of the following statements is **not** correct?
- Work is a state function.
 - Temperature is a state function.
 - Change in state is defined when initial and final states are specified.
 - Work appears at the boundary of the system.

134. Which of the following cells converts the heat energy released during the combustion of H_2 to an electrical energy?
- (A) Daniell cell
(B) Fuel cell
(C) Leclanche cell
(D) Mercury cell
135. Grignard reagents add to the carbonyl group of ketones to form
- (A) primary alcohols
(B) secondary alcohols
(C) tertiary alcohols
(D) Only (A) and (C)
136. Which of the following ions is colorless?
- (A) Ni^{+2}
(B) Cu^{+}
(C) Co^{+2}
(D) MnO^{4-}
137. Which of the following spectrochemical techniques is based on the magnetic properties of the nucleus of an atom?
- (A) MS
(B) UV
(C) NMR
(D) IR
138. Catalytic converters fitted in automobiles for reducing emission of poisonous gas are usually made up of
- (A) Fe, Cu and Pd
(B) Al, Th and Pd
(C) Pt, Pd and Rh
(D) Fe, Cu and Rh
139. Which of the following statements regarding SN^1 mechanism is **not** correct?
- (A) The reactions are unimolecular.
(B) The reactions are first-order.
(C) The reaction involves a single step.
(D) The reactions occur in two steps.
140. Which of the following is **not** a direct factor affecting the rate of a reaction?
- (A) Temperature
(B) Presence of catalyst
(C) Order of reaction
(D) Molecularity
141. Which of the following gases will effuse out of football bladder most quickly?
- (A) O_2
(B) SO_2
(C) D_2
(D) N_2

142. In India, the commonly used pesticide BHC is
(A) carbamate
(B) triazine
(C) antifungal
(D) organochlorine
143. Soap is a salt of which compound?
(A) Ethanoic acid
(B) Amino acid
(C) Fatty acid
(D) Formic acid
144. Electrode potential is generally referred to as
(A) reduction potential
(B) oxidation potential
(C) electron potential
(D) Cannot be determined
145. Indistinguishable particles which obey both Heisenberg's uncertainty principle and Pauli's exclusion principle also obey
(A) Fermi-Dirac statistics
(B) Maxwell-Boltzmann distribution
(C) Bose-Einstein statistics
(D) Sigmund distribution
146. Cellulose is a polymer of
(A) β -D(+) glucose
(B) α -D(+) glucose
(C) α -D(-) glucose
(D) β -D(-) glucose
147. Which of the following aldehydes is most reactive towards nucleophilic additions?
(A) Benzaldehyde
(B) Acetaldehyde
(C) Formaldehyde
(D) Propanaldehyde
148. According to Le Chatelier's principle, adding heat to a solid and a liquid in equilibrium will cause the
(A) amount of solid to decrease
(B) amount of liquid to decrease
(C) temperature to rise
(D) temperature to fall
149. Which of the following pairs is *not* meta-directing group?
(A) Nitro and carboxylic
(B) Carboxylic and aldehyde
(C) Ketonic and cyano
(D) Halo and hydroxy
150. An organic compound exhibits color due to the presence of
(A) chromophore
(B) auxochrome
(C) salt-forming group
(D) All of the above