



IPEC EXPLORER METICULOUS TEST-2024

(Admission Cum Scholastic Aptitude Test)

For

CLASS-VII

(For VII to VIII Moving Students)

Time : 3 Hrs.

Maximum Marks : 360

INSTRUCTIONS

1. The booklet is your Question Paper. Do not break the seal of this booklet before being instructed to do so by the invigilator.
2. Blank spaces and blank pages are provided in the question paper for your rough work. No additional sheets will be provided for rough work.
3. Blank papers, clipboards, log tables, slide rules, calculators, cameras, cellular phones, pagers and electronic gadgets are **NOT** allowed inside the examination hall.
4. The answer sheet, a machine-readable Optical Response Sheet (**ORS**), is provided separately.
5. On breaking the seal of the booklet check that it contains **17** pages and all the **90** questions.
6. A candidate has to write his / her answers in the ORS sheet by darkening the appropriate bubble with the help of **Black/Blue ball point pen** as the correct answer of the question attempted.
7. **Question Paper Format :**

This question paper consists of five **Parts**.

Part - I : Mental Ability - 20 Questions

Part - II : Physics - 20 Questions

Part - III : Chemistry - 20 Questions

Part - IV : Mathematics - 20 Questions

Part - V : Biology - 10 Questions

8. **Marking Scheme :**

Each question carries **+4 marks** for correct answer and **-1** for wrong answer.

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PART -I [Mental Ability]**[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

Directions (Questions 1 - 3):

In each of the following questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series:

1. 4, 7, 12, 19, 28, ?
(A) 30 (B) 36 (C) 39 (D) 49
2. 10, 100, 200, 310, ?
(A) 400 (B) 410 (C) 420 (D) 430
3. AC, FH, KM, PR, ?
(A) UW (B) VW (C) UX (D) TV

Direction (Questions 4 - 5):

In each of the following questions, there is a certain relationship between two given numbers on one side of :: and one number is given on another side of :: while another number is to be found from the given alternatives, having the same relationship with this number as the numbers of the given pair bear.

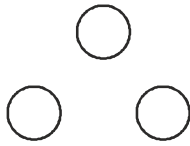
4. 42 : 20 :: 64 : ?
(A) 31 (B) 32 (C) 33 (D) 34
5. 121 : 12 :: 25 : ?
(A) 1 (B) 2 (C) 6 (D) 7
6. If in a certain language, MADRAS is coded as NBESBT, how is BOMBAY coded in that language?
(A) CPNCBX (B) CPNCBZ (C) CPOCBZ (D) None of these
7. In a certain code, BASIC is written as DDULE. How is LEADER written in that code?
(A) NGCFG T (B) NHCGGU (C) OGD FHT (D) OHDGHU
8. A man walks 1km towards East and then he turns to South and walks 5km. Again he turns to East and walks 2km, after this he turns to North and walks 9km. Now, how far is he from his starting point:
(A) 3 km (B) 4 km (C) 5 km (D) 7 km

(Space for rough work)

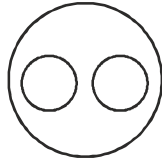
9. P, Q, R and S are playing a game of carrom. P, R and S, Q are partners. S is to the right of R who is facing west. Then, Q is facing:
 (A) North (B) South (C) East (D) West

Direction (Question 10 - 11):

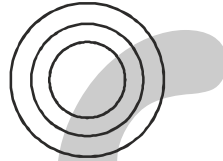
In each of these questions, select the diagram out of the four that best represents the relationship among the items given.



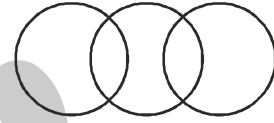
(A)



(B)



(C)



(D)

10. Mammal, Cow, Man
 11. Keyboard, Monitor, Mouse

Direction (Questions 12-13):

Three of the following four are alike in a certain way and so form a group. Which is the one that does not belong to that group.

12. (A) Physics (B) Chemistry (C) Geography (D) Botany
 13. (A) DEHG (B) RSVU (C) LMQP (D) JKNM

Direction (Questions 14-15):

In each of these questions, a word has been given, followed by four other words, one of which cannot be formed by using the letters of the given word. Find that word.

14. VARIEGATED
 (A) TRAVEL (B) TRADE (C) GREAT (D) RIGVEDA
 15. REASONABLE
 (A) BRAIN (B) BONES (C) NOBLE (D) ARSON

(Space for rough work)

Direction (Questions 16-20): Study the following information and answer the questions given below it:

All the six members of a family A, B, C, D, E and F are travelling together. B is the son of C but C is not the mother of B. A and C are a married couple. E is brother of C. D is the daughter of A. F is the brother of B.

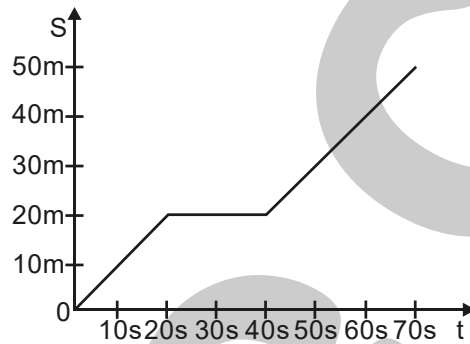
16. How many male members are there in the family?
(A) 1 (B) 2 (C) 3 (D) 4
17. Who is the mother of B?
(A) D (B) F (C) E (D) A
18. How many children does A have?
(A) One (B) Two (C) Three (D) Four
19. Who is the wife of E?
(A) A (B) C (C) B (D) Cannot be determined
20. Which of the following is a pair of females?
(A) AE (B) BD (C) DF (D) AD

(Space for rough work)

PART - II [Physics]**[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

21. A car is moving at speed of 54 km/h. Its speed in m/s is
 (A) 15 m/s (B) 20 m/s (C) 10 m/s (D) 5 m/s
22. The distance time graph of a man is shown. During which interval the man was at rest.



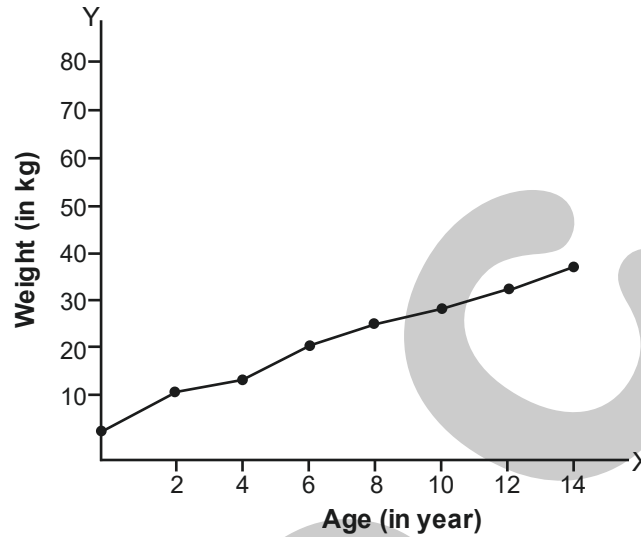
- (A) 20s to 30s (B) 30s to 40s (C) 20s to 40s (D) 30s to 50s
23. A simple pendulum takes 40s to complete 20 oscillations. What is the time period of the pendulum?
 (A) 0.5s (B) 2s (C) 1s (D) 1.5s
24. S.I. unit of speed is
 (A) m/s (B) km/h (C) m/min (D) km/min
25. A cyclone is known by 'typhoon' in which place
 (A) Sri Lanka (B) Brazil (C) America (D) Philippines
26. Eye of the storm is
 (A) a region free of clouds (B) is violently rotating mass of air
 (C) is a cloud region (D) none of the above
27. During lightning which could be a safe place for shelter
 (A) Car (B) Storage sheds (C) Open garages (D) Metal sheds

(Space for rough work)

28. A person measures the temperature of boiling water as T_1 freezing point of water as T_2 , boiling point of mercury T_3 and his own body temperature as T_4 . Arrange these temperature in increasing order.
- (A) T_1, T_2, T_3, T_4 (B) T_2, T_3, T_4, T_1 (C) T_2, T_4, T_3, T_1 (D) T_2, T_4, T_1, T_3
29. Which of the following is not a unit of temperature
- (A) Celsius (B) Fahrenheit
(C) Absolute temperature (D) Kelvin
30. Density of water is maximum at $4^\circ C$. A beaker is completely filled with water at $4^\circ C$. It will overflow if
- (A) Heated above $4^\circ C$
(B) Cooled below $4^\circ C$
(C) Both heated and cooled above and below $4^\circ C$ respectively
(D) Cannot be answered
31. A 2kg iron block at temperature $50^\circ C$ is kept in contact with a 1 kg copper block which is also at temperature of $50^\circ C$. Then
- (A) Heat will flow from iron block to copper block
(B) Heat will flow from copper block to iron block
(C) Heat will not flow
(D) Insufficient information
32. $0.1m^3$ of water at $80^\circ C$ is mixed with $0.3m^3$ of water at 60° . The final temperature of the mixture is
- (A) $65^\circ C$ (B) $50^\circ C$ (C) $45^\circ C$ (D) $0^\circ C$
33. A person moves along a straight road with constant speed of 30km/h for 10 minute. He then turn his car and get back to the starting point in 20 min. What is his speed while returning
- (A) 60 km/h (B) 30 km/h (C) 15 km/h (D) 20 km/h

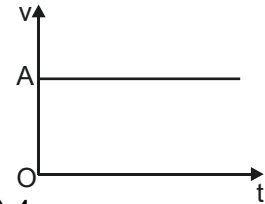
(Space for rough work)

34. Figure shows a line graph showing change in weight of a boy with age. Find his weight when he was in class eight.



- (A) 4 kg to 10 kg (B) 10 kg to 20 kg (C) 30 kg to 40 kg (D) 50 kg to 70 kg

35. The speed time graph of a car which moves at a speed of 36 km/h is shown in figure. A scale for speed was chosen as $5\text{ m/s} = 1\text{ cm}$, then OA will be equal to



- (A) 1 cm (B) 2 cm (C) 3 cm (D) 4 m
36. Which of the following is motion along straight line.
 (A) Landing of an air craft (B) Earth revolving around the sun
 (C) Motion of wheels of moving train (D) Stone dropped from some height

37. A person drives his bike at a speed of 40 km/h to go to his office which is 8 km away from home. One day on the way to office he has to drop a letter in the post office and also to take fuel at petrol pump. If at both the places he is supposed to spend 5 min each then when he should leave his home to reach office at 11.00 AM.

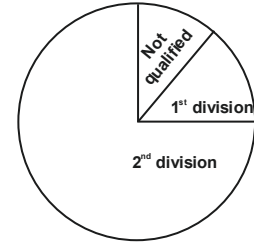
- (A) 9.25 AM (B) 9.42 AM (C) 9.32 AM (D) 9.38 AM

38. A car moves at a speed of 10 m/s for 10 minutes and 20 m/s for 20 minutes. The total distance covered by the car is

- (A) 20 km (B) 30 km (C) 30000 km (D) 200 km

(Space for rough work)

39. In exam the number of students who secured 1st division, 2nd division and not qualified is represented by pie chart as shown. If 50 students were disqualified and 60 students secured 1st division. Then total number of students appeared for the exam is



- (A) 110 (B) 220
(C) 330 (D) 440
40. Which of the statement given below is correct
(A) In winter winds flow from Ocean to land
(B) We can take shelter under an isolated tree during lightning
(C) The monsoon winds carry water and rains
(D) Warm air is heavier than the cold air

(Space for rough work)

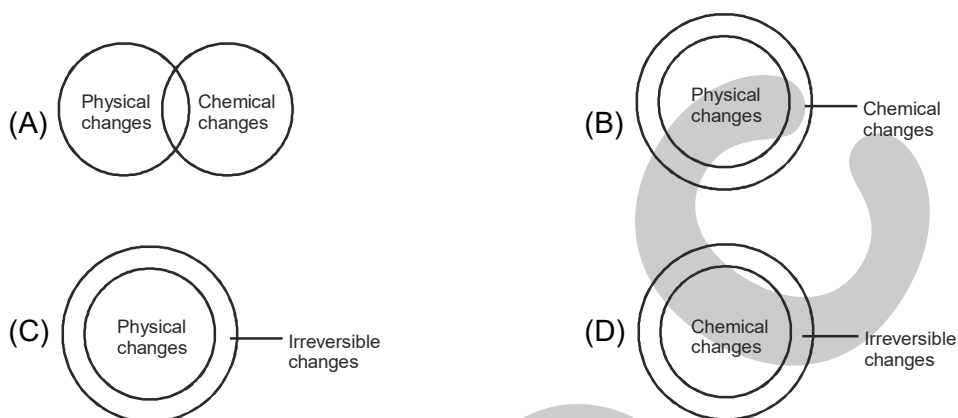
PART - III [Chemistry]**[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

41. The acidic waste of factories, before disposing off in the river is treated with
 (A) hydrochloric acid (B) bleaching powder
 (C) bases (D) salts
42. The main source of oxalic acid is
 (A) curd (B) spinach (C) lemon (D) orange
43. **List - I**
 (P) Quick lime
 (Q) Caustic soda
 (R) Washing soda
 (S) Milk of magnesia
 Code:
- | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|
| | P | Q | R | S | | P | Q | R | S |
| (A) | 1 | 2 | 3 | 4 | (B) | 3 | 1 | 4 | 2 |
| (C) | 2 | 3 | 4 | 1 | (D) | 4 | 2 | 1 | 3 |
- List - II**
 1. Sodium hydroxide
 2. Magnesium hydroxide
 3. Calcium oxide
 4. Sodium carbonate
44. Pure salt from the sea water can be obtained by
 (A) neutralisation (B) boiling
 (C) evaporation (D) evaporation and crystallisation
45. Identify the correct statement.
 (A) Rusting and burning are reversible changes.
 (B) Physical change is always an irreversible change.
 (C) Oxygen gas turns limewater milky.
 (D) Cutting of an apple is an irreversible chemical change.
46. **List - I**
 (P) Iron nail + Copper sulphate
 (Q) Vinegar + Baking soda
 (R) Iron + Moisture + Air
 (S) Lime water + Carbon dioxide
 Code:
- | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|
| | P | Q | R | S | | P | Q | R | S |
| (A) | 3 | 1 | 4 | 2 | (B) | 3 | 1 | 2 | 4 |
| (C) | 2 | 3 | 1 | 4 | (D) | 1 | 2 | 4 | 3 |
- List - II**
 (1) Carbon dioxide
 (2) Calcium carbonate
 (3) Displacement reaction
 (4) Rust

(Space for rough work)

47. The crystals that are obtained after crystallization are:
 (A) 10% pure (B) between 20% to 50% pure
 (C) between 50% to 90% pure (D) more than 90% pure
48. Which of the following Venn diagrams shows the relationship between changes correctly?



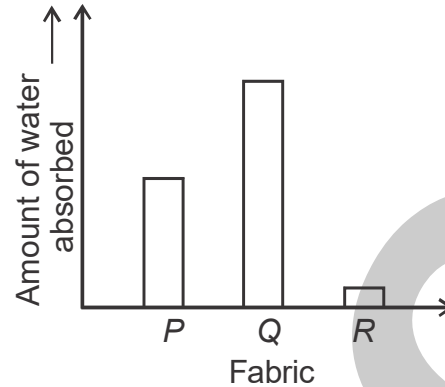
49. Manisha took a little bit of soil from her garden and mixed it with water. When she dipped a blue litmus in it, the litmus turned red. By adding which of the following to her garden will she get better plant growth?
 (A) Hydrochloric acid (B) Slaked lime (C) Water (D) Salt
50. Which of the following is NOT a physical change?
 (A) Teasing a paper (B) Bending an iron rod
 (C) Freezing water into ice (D) None of these
51. Which among the following is the strongest acid?
 (A) Acetic acid (B) Sulphuric acid (C) Formic acid (D) Tannic acid
52. Nonmetallic oxides react with water to form
 (A) acids (B) bases (C) salt (D) none of these
53. Phenolphthalein turns _____ in acidic and neutral solutions.
 (A) colourless (B) pink (C) red (D) green
54. Sulphuric acid is formed when _____ reacts with water.
 (A) SO_2 (B) S (C) SO_3 (D) O_2

(Space for rough work)

55. Which of the following statements is incorrect ?
(A) Jute is one of the cheapest natural fibres
(B) Knitting is another name for weaving
(C) Fibres are twisted to form yarn
(D) Man-made fibres are made from chemical substances
56. Early men used to cover their bodies by
(A) bark and leaves (B) animal skin (C) flax and cotton (D) both (A) and (B)
57. Which of the following fibres is/are obtained from fleece of certain animals?
(A) Wool and jute (B) Silk and wool (C) Cotton (D) Wool
58. The process of arranging two sets of yarn together to form a fabric is called (i) whereas the process in which a single yarn is used to make a piece of fabric is called (ii).
Select the correct option for (i) and (ii).
- | (i) | (ii) |
|--------------|----------|
| (A) Spinning | knitting |
| (B) weaving | spinning |
| (C) weaving | knitting |
| (D) knitting | weaving |
59. Coir is obtained from
(A) bolls of cotton plant (B) stalk of coconut plant
(C) husk of coconut fruit (D) stem of jute plant

(Space for rough work)

60. Refer to the given graph plotted for three different fabric pieces of equal size P, Q and R on the basis of their water absorbing capacity and select the correct statement.



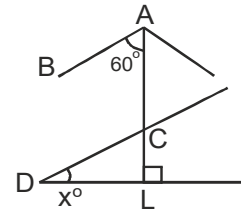
- (A) P is made up of fibres obtained from *Gossypium* plant whereas R is made up of fibres obtained from an insect.
- (B) Q is made up of protein fibres obtained from an insect whereas R is made up of cellulose fibres obtained from flower of a plant
- (C) R is made up of fibres obtained from plant stem by the process of retting whereas P is made up of fibres obtained from plant seed by the process of ginning
- (D) P is biodegradable whereas Q and R are non-biodegradable

(Space for rough work)

PART - IV [Mathematics]**[SINGLE CORRECT TYPE]**

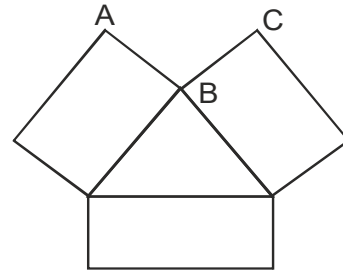
Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

61. If the number $123a56$ is divisible by 9, then value of a is
 (A) 2 (B) 4 (C) 0 (D) 1
62. The last two digit in the number 5^{2005} is
 (A) 25 (B) 35 (C) 75 (D) 95
63. When a three digit number is divisible by 2, 3, 4,5 and 7, the remainders are all 1. Find the minimum value of such three digit numbers.
 (A) 425 (B) 421 (C) 841 (D) 302
64. If $2 \times 4 \times 6 \times 8 \times 10 \times \dots \times 2002$. What is the last three digits of n .
 (A) 003 (B) 100 (C) 500 (D) 000
65. $x^{3^n} + y^{3^n}$ is divisible by $x + y$ if
 (A) n is any integer ≥ 0 (B) n is an odd positive integer
 (C) n is an even positive integer (D) n is a rational number
66. Aruna, Bhanu and Rita have some amount of money. The ratio of the money of Aruna to that of Bhanu is $7 : 15$ and the ratio of the money of Bhanu and Rita is $7 : 16$. If Aruna has Rs.490, the amount of money Rita has is (in Rs)
 (A) 1500 (B) 1600 (C) 2400 (D) 3600
67. If $a^2 + b^2 - 6a - 2b + 10 = 0$ what is the value of $a + b$
 (A) 3 (B) 4 (C) 6 (D) 9
68. In the given figure $AB \parallel CD$ and $\angle BAC = 60^\circ$. Find the value of x
 (A) 30° (B) 60°
 (C) 45° (D) 50°
69. The value of $1 - 2 + 3 - 4 + 5 - \dots + 2015$ is
 (a) 1015 (B) 1008 (C) 2015 (D) 1007

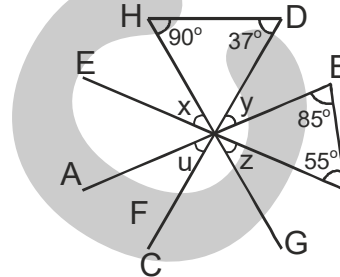


(Space for rough work)

70. In the given figure three squares of unit length are placed. Find the $\angle ABC$
- (A) 130°
 - (B) 150°
 - (C) 90°
 - (D) 120°



71. In the given figure, AB, CD, EF and GH are straight lines passing through single point. The value of $\angle x + \angle y + \angle z + \angle u$ is
- (A) 155°
 - (B) 164°
 - (C) 174°
 - (D) 148°

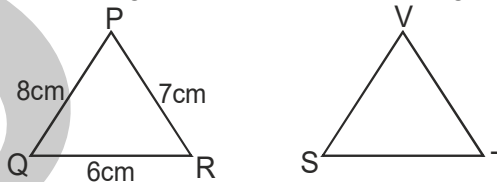


72. $\frac{p}{q}$ form of the number $0.\overline{672}$ is

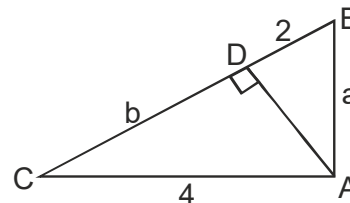
- (A) $\frac{672}{990}$
- (B) $\frac{672}{999}$
- (C) $\frac{37}{55}$
- (D) $\frac{11}{18}$

73. The number of trees in different parts of a city are 33, 38, 50, 42, 50, 34, 50, 61. The mod of this data is
- (A) 33
 - (B) 61
 - (C) 42
 - (D) 50

74. If ΔPQR is congruent to ΔSTU as shown in figure, then what is the length of TU?
- (A) 7 cm
 - (B) 6 cm
 - (C) 8 cm
 - (D) None of these



75. In the given figure, if $AD \perp BC$, $AC = 4$, $BD = 2$, $AB = a$ and $CD = b$, then $a^2 + b^2 =$
- (A) 6
 - (B) 8
 - (C) 12
 - (D) 20



(Space for rough work)

76. If $5a + 3b = 31$ and $7a - 5b = 25$, then what is the mean of a and b
(A) 20 (B) 4.5 (C) 10 (D) 3.5
77. The sum of numerator and denominator of a fraction is 12. If the denominator is increased by 3, the fraction becomes $\frac{1}{2}$. The fraction is:
(A) $\frac{7}{5}$ (B) $\frac{3}{9}$ (C) $\frac{5}{7}$ (D) $\frac{9}{3}$
78. The runs scored in a cricket match by 11 players are as follows:
9, 15, 121, 51, 101, 81, 50, 16, 82, 11, 1
Find the mean, mode and median respectively of this data
(A) 48, 11, 51 (B) 49.81, 11, 51 (C) 49.90, 11, 50 (D) 49.81, 11, 50
79. Two natural number differ by 41. The bigger number is greater than 30 times the smaller number plus 10. The smaller number is
(A) 11 (B) 2007 (C) 71 (D) 1
80. The value of $\left(1 - \frac{1}{2^2}\right)\left(1 - \frac{1}{3^2}\right)\left(1 - \frac{1}{4^2}\right) \dots \dots \dots \left(1 - \frac{1}{2007^2}\right)$ is
(A) $\frac{2008}{2007}$ (B) $\frac{1004}{2007}$ (C) $\frac{2007}{2008}$ (D) 1

(Space for rough work)

PART - V [Biology]**[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

-
-
81. The components that are necessary for our body are called
(A) Vitamins (B) Pulses (C) Nutrients (D) Minerals
82. The mode of nutrition in which organisms make food for themselves is called
(A) Autotrophic nutrition (B) Heterotrophic nutrition
(C) Saprophytic nutrition (D) All
83. The bacterium which provides nitrogen to the leguminous plants is
(A) fungi (B) Rhizobium (C) Yeast (D) Lichens
84. Pitcher is an example of
(A) Insectivorous Plants (B) Leguminous Plant
(C) Algae (D) Fungi
85. The process by which a plant prepares its food by photosynthesis, takes place in presence of
(A) Moon light (B) Candle light (C) Sunlight (D) Bulb light
86. _____ gas is released by the plants in the process of photosynthesis
(A) Oxygen (B) Nitrogen (C) CO₂ (D) Hydrogen
87. The breakdown of complex components of food into simpler substances is called
(A) Breathing (B) Digestion (C) Nutrition (D) Respiration
88. The largest gland in the human body is
(A) Oesophagus (B) Liver (C) Salivary gland (D) villi
89. The process of digestion taking place in grass-eating animals is called
(A) Egestion (B) Rumination (C) Assimilation (D) Absorption
90. Diarrhoea is caused due to
(A) Infection (B) Indigestion (C) Poisoning (D) All of the above

(Space for rough work)