



# Aakash

**Medical | IIT-JEE | Foundations**

(Divisions of Aakash Educational Services Pvt. Ltd.)

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Time : 90 Min.

Max. Marks : 100

## Answers & Solutions for NTSE (Stage-I) 2017-18

**PART-I : Scholastic Aptitude Test (SAT)**

### INSTRUCTIONS TO CANDIDATES

1. Use blue/black ball point pen only. There is no negative marking.
2. There are 100 questions in this test. The questions are arranged in the following order :
  - Questions 1 to 40 belong to Science subjects
  - Questions 41 to 60 are on Mathematics
  - Questions 61 to 100 are on Social Science
3. Select the most suitable answer for each question and completely darken the circle corresponding to the correct alternative as shown below :

Example :

Q. No.	Alternatives
1	① ② ● ④
Q. No.	Alternatives
1	⊗ ⊖ ③ ④

4. All questions carry ONE MARK each.
5. There is no negative mark. Every correct answer will be awarded one mark.
6. Do not write your name on any part of the question booklet or on the answer sheet.

# PART-I : SCIENCE

1. Identify the wrongly matched pairs.

a. Monocyte	—	Actively phagocytic
b. Thrombocyte	—	Produces antibodies
c. Lymphocyte	—	Initiates blood clotting
d. Eosinophil	—	Associated with allergy

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

## Answer (2)

**Sol.** Thrombocyte is for clotting mechanism & lymphocytes are responsible for antibody production.

2. The bacteria used for scavenging oil spills by digesting hydrocarbons of crude oil

  - (1) *Rhizobium meliloti*
  - (2) *Bacillus thuringiensis*
  - (3) *Pseudomonas putida*
  - (4) *Escherichia Coli*

### **Answer (3)**

**Sol.** "Pseudomonas putida / superbug helps in removing oils spills from the contaminated sea water.

## Rhizobium – Symbiotic bacteria

## Bacillus – Used in biotechnology

E. Coli – Common bacteria in human small intestine.

3. Pickout the feature of dicot plant.

  - (1) Leaves are isobilateral
  - (2) Mesophyll is undifferentiated
  - (3) Roots show secondary growth
  - (4) Vascular bundles are closed

### **Answer (3)**

**Sol.** Dicot root can show secondary growth to form secondary phloem and secondary xylem.

4. Which is NOT TRUE about Meiosis?

  - (1) Meiosis reduces the number of chromosomes to half
  - (2) Meiosis occurs during gametogenesis
  - (3) Meiosis I results in two daughter cells
  - (4) Meiosis I is similar to Mitosis

## Answer (4)

**Sol.** Meiosis II is equal to mitosis but not Meiosis I because it is a reductional division

5. The plant that shows hydrophily

(1) Vallisneria                          (2) Maize  
(3) Pea                                    (4) Rafflesia

### **Answer (1)**

## Sol. Maize – Wind pollination

Pia – By insects

### Rafflesia – By elephants

6. Which one of the following is NOT associated with the process of hearing?

  - (1) Tympanum
  - (2) Semicircular canals
  - (3) Cochlea
  - (4) Auditory Canal

## Answer (2)

**Sol.** Semicircular canals present in inner ear balances along with the cerebellum of the brain

7. The skeletal joint that enables movement in only one direction is

(1) Hinge joint                          (2) Ball and socket joint  
(3) Gliding joint                          (4) Pivot joint

### Answer (1)

### Sel "Hinge joint (Both Elbow and knee joint)"

Ball & socket in shoulder and Pelvic / Hip joint

### Gliding = Carnals

Pivot – Between Atlas & axis as well as radius and ulna

8. The part of the nucleus that plays a major role in the synthesis of ribosomes
- Chromatin reticulum
  - Nuclear pore
  - Nucleoplasm
  - Nucleolus

**Answer (4)**

**Sol.** It is a ribosome factory produces ribosomes in it.

9. Which is a fungal disease?
- Athlete's foot
  - Filariasis
  - Measles
  - Rabies

**Answer (1)**

**Sol.** Filariasis – Helminth disease

Measles / Rabies – Viral disease.

10. Identify the statements related to dark reaction of photosynthesis.
- Takes place in the stroma
  - Formation of ATP
  - Formation of glucose
  - Evolution of oxygen
- (a) and (b)
  - (b) and (c)
  - (a) and (c)
  - (b) and (d)

**Answer (3)**

**Sol.** In Photosynthesis dark reaction takes place in the stroma where  $\text{CO}_2$  get reduced to form glucose.

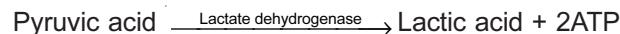
11. Which option indicates the parts of gynoecium?
- Pollen grain, filament, ovary, tube nucleus
  - Polar nuclei, stigma, ovule, style
  - Style, stamen, stigma, generative nucleus
  - Ovary, anther, filament, polar nuclei

**Answer (2)**

12. Which is NOT TRUE about lactic acid fermentation?
- Glycolysis is the initial phase
  - Glucose is broken down incompletely
  - Only two ATP molecules are generated
  - Carbon dioxide is liberated

**Answer (4)**

**Sol.** No  $\text{CO}_2$  is released during lactic acid fermentation as it is a anaerobic respiration takes place in lactic acid bacteria as well as the skeletal muscles of human in which pyruvic acid is converted to lactic acid and releases two molecules of ATP.



13. Match the items in Column – I with Column – II and select the correct option from those given below.

<b>Column – I</b>	<b>Column – II</b>
-------------------	--------------------

- |                 |                             |
|-----------------|-----------------------------|
| a. Mutualism    | i. Lion and Rabbit          |
| b. Commensalism | ii. Loranthus on Mango tree |
| c. Parasitism   | iii. Flower and butterfly   |
| d. Predation    | iv. Vanda on Ficus tree     |
- 
- |             |         |        |         |
|-------------|---------|--------|---------|
| (1) a – iv  | b – iii | c – i  | d – ii  |
| (2) a – iii | b – iv  | c – ii | d – i   |
| (3) a – ii  | b – i   | c – iv | d – iii |
| (4) a – iii | b – iv  | c – i  | d – ii  |

**Answer (2)**

14. The hormone that promotes lactation and stimulates the uterus to contract

- Calcitonin
- Thyroxine
- Oxytocin
- Vasopressin

**Answer (3)**

**Sol.** Calcitonin – Calcium balance

Thyroxin – Metabolism

Vasopressin – Water balance

15. A box measures  $10 \text{ cm} \times 11.2 \text{ cm} \times 10 \text{ cm}$ . Assume that this box is filled with neon gas at 1 atm pressure and 273 K temperature. How many electrons will be there in the box?

- $6.022 \times 10^{23}$
- $3.011 \times 10^{23}$
- $6.022 \times 10^{22}$
- $3.011 \times 10^{22}$

**Answer (2)**

**Sol.** Volume =  $10 \text{ cm} \times 11.2 \text{ cm} \times 10 \text{ cm}$   
 $= 1120 \text{ cm}^3$

neon atomic number = 10

each atom contains = 10 electrons

$22400 \text{ cm}^3 \rightarrow 10 \times 6.022 \times 10^{23} \text{ electrons}$

$1120 \text{ cm}^3 \rightarrow x = ?$

$$x = \frac{1120 \times 10 \times 6.022 \times 10^{23}}{22400} \text{ electrons}$$

$= 3.011 \times 10^{23}$  electrons

16. The key step for the manufacture of sulphuric acid by contact process is given below.



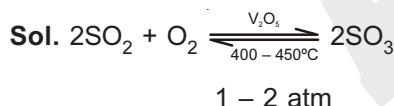
Which of the following are favourable for the contact process?

- A. Pressure of 2 atm and temperature of about  $450^\circ\text{C}$
- B. Removal of  $\text{SO}_2$  and  $\text{O}_2$
- C. Use of  $\text{V}_2\text{O}_5$  as catalyst
- D. Removal of  $\text{SO}_3$

Choose the correct alternative

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

**Answer (4)**



Decrease the concentration of product, favour the forward reaction

17. Which of the following sets contain molecules with double or triple bonds?

- A.  $\text{H}_2$ ,  $\text{Br}_2$ ,  $\text{H}_2\text{O}$ ,  $\text{NH}_3$
- B.  $\text{F}_2$ ,  $\text{O}_2$ ,  $\text{CO}_2$ ,  $\text{Cl}_2$
- C.  $\text{CO}_2$ ,  $\text{N}_2$ ,  $\text{H}_2$ ,  $\text{NH}_3$
- D.  $\text{NH}_3$ ,  $\text{Cl}_2$ ,  $\text{CH}_4$ ,  $\text{CCl}_4$

- |                 |                 |
|-----------------|-----------------|
| (1) (A) and (C) | (2) (B) and (C) |
| (3) (A) and (D) | (4) (B) and (D) |

**Answer (2)**

**Sol.** O = O double bond

O = C = O double bond

N ≡ N triple bond

18. The number of electrons present in d-subshell of copper atom

- |        |       |
|--------|-------|
| (1) 3  | (2) 9 |
| (3) 10 | (4) 8 |

**Answer (3)**

**Sol.**  ${}_{29}\text{Cu}$  : [Ar]  $4s^2 3d^9$  × less stable

[Ar]  $4s^1 3d^{10}$  ✓ more stable

s orbital is half filled

d orbital is fully filled : extrastability

19. Match the following :

- |                      |                   |
|----------------------|-------------------|
| a. Eye wash          | i. Carbonic acid  |
| b. Food preservation | ii. Tartaric acid |
| c. Baking power      | iii. Citric acid  |
| d. Flavouring drinks | iv. Boric acid    |
|                      | v. Oxalic acid    |

Select the correct alternative.

- |             |         |        |        |
|-------------|---------|--------|--------|
| (1) a – iv  | b – iii | c – ii | d – i  |
| (2) a – iii | b – ii  | c – v  | d – iv |
| (3) a – iv  | b – iii | c – ii | d – v  |
| (4) a – v   | b – iii | c – ii | d – i  |

**Answer (1)**

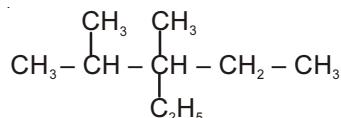
**Sol.** Eye wash – Boric acid

Food preservation – Citric acid

Baking powder – Tartaric acid

Flavouring drinks – carbonic acid

20. Which of the following is the IUPAC name of the compound?



- (1) 3 – Ethyl – 2, 3 – dimethyl pentane
- (2) 3 – Ethyl – 2, 3 – dimethyl hexane
- (3) 3 – Ethyl – 3, 4 – dimethyl pentane
- (4) 3 – Ethyl – 3, 4 – dimethyl pentane

**Answer (1)**

**Sol.** Step 1 : Identifying the long chain

Step 2 : Numbering according to lowest locant rule

Step 3 : Identifying the branches [alphabetical order]

3-Ethyl-2, 3-dimethyl pentane

21. Liquid ammonia bottles are cooled before opening the seal. Which of the following laws is applied here?
- Boyle's law
  - Charle's law
  - Avogadro's law
  - Graham's law

**Answer (4)**

22. The components of the alloy used for making permanent magnets
- Fe, Cr, Ni and C
  - Fe, Co, Ni and Al
  - Fe, Ni, Cu and C
  - Fe, Cu, Cr and C

**Answer (2)**

**Sol.** AlNiCo, Aluminium, Nickel, Cobalt, Iron

23. Which of the following are true?

- Ionisation energy increases from left to right across a period
  - Atomic size decreases on going down a group
  - Metallic character decreases from left to right across a period
  - Electronegativity increases on going down a group
- (A) and (B)
  - (A) and (D)
  - (B) and (D)
  - (A) and (C)

**Answer (4)**

- Sol.** \* Ionisation energy increases from left to right across a period due to decrease in the size of atom from left to right.
- \* Atomic size increases on going down a group because, increase in no. of shell
- \* Metallic character decreases from left to right across a period, because electropositive character decreases across a period, [tendency to donate  $e^-$  decreases across a period]
- \* Electronegativity decreases on going down a group

24. Type of isomerism exhibited by the compound  $C_4H_8$
- Chain isomerism only
  - Chain isomerism and position isomerism
  - Position isomerism only
  - Functional isomerism only

**Answer (2)**

**Sol.**  $C_4H_8 \approx C_nH_{2n} \Rightarrow$  Alkene



25. Which of the following methods is used for the concentration of the ore galena?

- Froth floatation
- Magnetic separation
- Leaching
- Gravity separation method

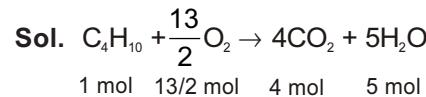
**Answer (1)**

**Sol.** Galena – Froth floatation

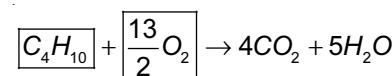
26. The number of moles of  $O_2$  required for the complete combustion of 11.6 g of butane

- |                   |                    |
|-------------------|--------------------|
| (1) 6.5 mol $O_2$ | (2) 11.6 mol $O_2$ |
| (3) 13 mol $O_2$  | (4) 1.3 mol $O_2$  |

**Answer (4)**



Given,  $\frac{11.6g}{58g} mol$



given, 0.2 mol

for 1 mol butane ;  $\frac{13}{2}$  mol  $O_2$  required

for 0.2 mol butane ;  $\frac{13}{2} \times 0.2$  mol  $O_2$  required  
 $= 1.3 \text{ mol } O_2$



35. On a stationary sail boat air is blown from a fan attached to the boat. The boat will
- Not move
  - Spin around
  - Move in the direction in which air is blown
  - Move in the direction opposite to that in which air is blown

**Answer (1)**

**Sol.** Internal forces can't change position of boat.

36. Sound signals were sent down from a ship return after 2s. Find out the depth of the sea, if the speed of sound in water is 1.5 km/s?
- 3 km
  - 150 m
  - 300 m
  - 1.5 km

**Answer (4)**

**Sol.**  $v = \frac{\text{distance}}{\text{time}} \Rightarrow 1.5 \times 10^3 = \frac{2d}{2} \Rightarrow d = 1.5 \text{ km}$

37. An ice cube is suspended in vacuum in a gravity free hall. As the ice melts it
- Will retain its cubical shape
  - Will change its shape to spherical
  - Will fall down on the floor of the hall
  - Will fly up

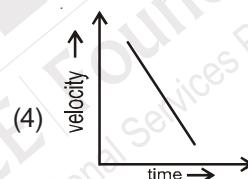
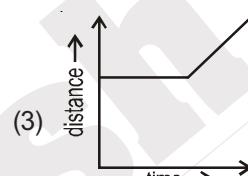
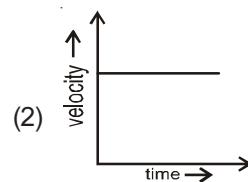
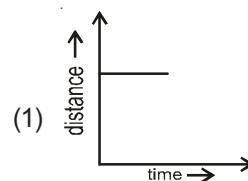
**Answer (2)**

**Sol.** Water formed changes to spherical due to surface tension

38. When a glass rod rubbed with silk is brought near the cap of an electroscope, then
- The leaf has an induced negative charge
  - No charge is induced on the leaves
  - Positive charge is induced on one leaf and negative charge on the other leaf
  - The leaf has an induced positive charge

**Answer (4)**

39. Which one of the following graphs shown below represents uniform speed?



**Answer (2)**

**Sol.** Conceptual

40. An iron ball and a wooden ball of same radius are released from a height  $h$  in vacuum. The time taken by both of them to reach the ground are

- Roughly equal
- Exactly equal
- Not equal
- Equal only at the equator

**Answer (2)**

**Sol.**  $s = ut + \frac{1}{2}at^2$

$$\Rightarrow t = \sqrt{\frac{2s}{a}} = \sqrt{\frac{2h}{g}}$$

as his same for both, 't' is also same.

## PART-II : MATHEMATICS

41. What is the smallest number which leaves the same remainder 1 on division by 18, 24, 30, 42 ?

- (1) 2519
- (2) 2520
- (3) 2521
- (4) 2522

**Answer (3)**

**Sol.** Hint:- Divisibility of 2,3

42. What is the sum of all factors of 256 ?

- (1) 511
- (2) 512
- (3) 1023
- (4) 1024

**Answer (1)**

**Sol.** Add all factor 2,4,8,16,...256

43. The difference of the squares of two consecutive natural numbers is 101. What is the sum of the numbers ?

- (1) 102
- (2) 101
- (3) 100
- (4) 99

**Answer (2)**

44. The sum of two numbers is 40 and their difference is 10. What is their product ?

- (1) 325
- (2) 350
- (3) 375
- (4) 400

**Answer (3)**

45. The 5<sup>th</sup> term of the arithmetic sequence is 5 and the sum of the first 5 terms is 55. What is its first term?

- (1) 15
- (2) 16
- (3) 17
- (4) 18

**Answer (3)**

**Sol.**  $an = a + (n-1)d$

$$Sn = \frac{n}{2}(2a + (n-1)d)$$

46. The sum of the first 11 terms and the sum of the first 17 terms of an arithmetic sequence are equal. What is the sum of the first 28 terms?

- |        |       |
|--------|-------|
| (1) 28 | (2) 1 |
| (3) -1 | (4) 0 |

**Answer (4)**

**Sol.** Sum of first 11= sum of first 17 are equal. Therefore, Sum of first 28 are 0.

47. There are two taps to fill a tank. If both are opened, the tank fills in 1 hour. If the smaller tap alone is opened, it takes 3 hours to fill the tank. How many hours will it take to fill the tank, if the larger tap alone is opened?

- |                    |                    |
|--------------------|--------------------|
| (1) 2              | (2) $1\frac{1}{2}$ |
| (3) $1\frac{1}{3}$ | (4) $1\frac{1}{4}$ |

**Answer (2)**

**Sol.** Time and work =  $\frac{xy}{x+y}$

48. What is the number you get on simplifying the sum

$$\frac{1}{3} + \frac{1}{3^2} + \frac{1}{3^3} + \dots + \frac{1}{3^{10}} + \frac{1}{2 \times 3^{10}} ?$$

- |                   |                   |
|-------------------|-------------------|
| (1) 1             | (2) $\frac{2}{3}$ |
| (3) $\frac{1}{2}$ | (4) $\frac{1}{3}$ |

**Answer (3)**

**Sol.**  $Sn = \frac{a(1-r^n)}{1-r}$

49. What do we get on simplifying the expression

$$\frac{x}{x+1} + \frac{x+1}{x} + \frac{1}{x(x+1)}$$

(1) 2

(2)  $\frac{1}{2}$

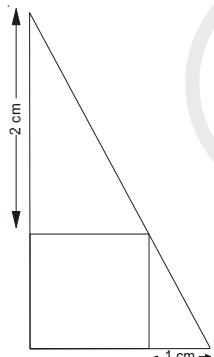
(3)  $2x$

(4)  $\frac{1}{2}x$

**Answer (1)**

**Sol.** Simplification by LCM

50. The figure shows a right triangle and a square inside it.



What is the length of aside of the squares?

(1)  $\sqrt{3}$

(2)  $\sqrt{2}$

(3) 2

(4) 1

**Answer (2)**

**Sol.** Area of triangle = Area of small triangles + area of squares

51. The sum of two numbers and the difference of their squares are both 10. What is the larger of these two numbers?

(1) 4

(2)  $4\frac{1}{2}$

(3) 5

(4)  $5\frac{1}{2}$

**Answer (4)**

**Sol.** Simplification

52. Two dice marked with numbers 1 to 6 are rolled together. What is the probability of getting an odd numbers on one of these and a multiple of three on the other?

(1)  $\frac{1}{6}$

(2)  $\frac{1}{3}$

(3)  $\frac{11}{36}$

(4)  $\frac{13}{36}$

**Answer (3)**

53. A square is drawn with vertices on a circle. The area of the square is 4 square centimeters. What is the area of the circle(in sq.cm.)?

(1)  $\pi$

(2)  $\sqrt{2}\pi$

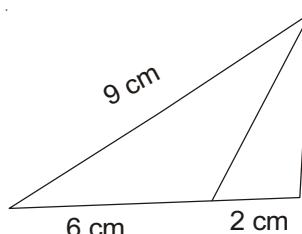
(3)  $2\pi$

(4)  $4\pi$

**Answer (3)**

**Sol.** Diagonal = Diameter

54. In the figure, the bisector of an angle of the large triangle cuts the opposite side into two pieces.



What is the length of the third side of the triangle in centimeters?

(1) 3

(2) 3.5

(3) 4

(4) 4.5

**Answer (1)**

**Sol.** Internal Angular bisector theorem



## PART-III : SOCIAL SCIENCE

61. Rearrange the following in chronological order.
- Second Continental Congress
  - Treaty of Paris
  - Boston tea Party
  - End of the war between Britain and the American Colonies
- (1) c, d, a, b      (2) a, d, b, c  
 (3) c, a, d, b      (4) a, c, d, b

**Answer (3)**

62. The eighteenth century was called
- The Age of Conflict
  - The Age of Reason
  - The Age of Ideas
  - The Age of Nationalism

**Answer (2)**

63. Name the Chancellor of Austria during the Vienna Congress.
- Napoleon
  - William II
  - Tallyrand
  - Metternich

**Answer (4)**

64. Which was known as 'The war to End All Wars'.
- Second World War
  - French Revolution
  - First World War
  - American Civil War

**Answer (3)**

65. Which among the following is wrongly related?
- Kurichya Revolt- Tribal revolt
  - Indigo Revolt- Peasant Revolt
  - Santhal Rebellion- Peasant Rebellion
  - Vellore Mutiny- Sepoy Mutiny

**Answer (3)**

66. Match list -I with List-II and select the correct response from the options given.

<b>List-I</b>	<b>List-II</b>
i. Buland Darwaza	a. Shahjahan
ii. Moti Masjid in Lahore	b. Aurangazeb
iii. Jama Masjid	c. Akbar
iv. Badshahi Mosque	d. Jahangir
(1) i-c, ii-d, iii-a, iv-b	(2) i-c, ii-a, iii-d, iv-b
(3) i-a, ii-d, iii-c, iv-b	(4) i-a, ii-b, iii-d, iv-c

**Answer (1)**

67. Name the founder of the Virashaiva movement.
- Vallabhacharya
  - Ramananda
  - Ramanuja
  - Basavanna

**Answer (4)**

68. The high ranking official in charge of controlling markets during the reign of Alauddin Khilji
- Wazir
  - Shahna
  - Wakil-i-Dar
  - Wali

**Answer (2)**

69. Nicolo Conti, who visited India during the rule of Vijayanagar Empire was a native of
- Russia
  - Portugal
  - Africa
  - Italy

**Answer (4)**

70. Consider the following statements and identify the correct response from the options given.

**Statement - I :** Swami Vivekananda contributed to the rise of Indian nationalism.

**Statement - II :** Swami Vivekananda attended the parliament of Religions held at Chicago in 1893.

- Statement I is true and Statement II is false
- Statement I is false and Statement II is true
- Both Statement are true and Statement II is the correct explanation of Statement I
- Both statements are true but Statement II is not the correct explanation of Statement I

**Answer (4)**

71. Who started the 'Swadesh Vastra Pracharini Sabha' as a part of the Swadeshi Movement?

- (1) Bal Gangadhara Tilak
- (2) Lala Lajpat Rai
- (3) Bipin Chandra Pal
- (4) Rabindranath Tagore

**Answer (1)**

72. The head quarters of the 'National School of Drama' is at

- |               |             |
|---------------|-------------|
| (1) Bombay    | (2) Kolkata |
| (3) New Delhi | (4) Pune    |

**Answer (3)**

73. The geographical factor which is NOT favourable for the growth of rubber.

- (1) Temperature between  $25^{\circ}$  and  $35^{\circ}$
- (2) Clayey soil
- (3) Rainfall above 150 cm
- (4) Land free from water logging

**Answer (2)**

74. The pair of ocean currents and oceans NOT correctly matched.

<b>Ocean currents</b>	<b>Oceans</b>
(1) Kuroshio current	Atlantic ocean
(2) Oyashio current	Pacific ocean
(3) Mozambique	Indian ocean current
(4) Gulf stream	Atlantic ocean

**Answer (1)**

75. The climatic region characterized by winter rainfall.

- (1) Monsoon region
- (2) Tropical deserts
- (3) Mediterranean region
- (4) Tundra region

**Answer (3)**

76. The pressure belt that forms exclusively due to the sinking of air is

- (1) Equatorial low pressure belt
- (2) Sub tropical high pressure belt
- (3) Sub polar low pressure belt
- (4) Polar high pressure belt

**Answer (4)**

77. The State of India with the lowest sex ratio as per census 2011.

- |            |                |
|------------|----------------|
| (1) Punjab | (2) Haryana    |
| (3) Kerala | (4) Tamil Nadu |

**Answer (2)**

78. The river to which Indravati is a tributary

- |                    |                    |
|--------------------|--------------------|
| (1) River Krishna  | (2) River Godavari |
| (3) River Mahanadi | (4) River Kaveri   |

**Answer (2)**

79. Two places A and B are found marked 10 cm apart on a map. What is the actual distance between these two places on the ground if the scale of the map is 1 : 50000.

- |           |            |
|-----------|------------|
| (1) 5 km  | (2) 20 km  |
| (3) 10 km | (4) 0.5 km |

**Answer (1)**

80. Which one of the following is NOT a depositional landform?

- |                 |                    |
|-----------------|--------------------|
| (1) Stalagmites | (2) Mushroom rocks |
| (3) Moraines    | (4) Beaches        |

**Answer (2)**

81. A steel plant established in India with the collaboration of UK.

- |                        |                          |
|------------------------|--------------------------|
| (1) Bhilai steel plant | (2) Rourkela steel plant |
| (3) Bokaro steel plant | (4) Durgapur steel plant |

**Answer (4)**

82. The one which occurs at divergent plate margins

- (1) Collision of plates
- (2) Lateral movement
- (3) Formation of fold mountains
- (4) Sea floor spreading

**Answer (4)**

83. Which one of the following is NOT a greenhouse gas?

- |                    |             |
|--------------------|-------------|
| (1) Carbon dioxide | (2) Methane |
| (3) Nitrous oxide  | (4) Argon   |

**Answer (4)**

84. Identify the wrong pair.

- |                                    |
|------------------------------------|
| (1) Varanasi - Kanyakumari - NH 17 |
| (2) Salem - Kanyakumari - NH 47    |
| (3) Agra - Mumbai - NH 3           |
| (4) Navi Mumbai - Pune - NH 4      |

**Answer (1)**

85. The new Economic Policies which disregard government control are known as  
 (1) Liberalisation      (2) Neo-liberalisation  
 (3) Privatisation      (4) Globalisation

**Answer (1)**

86. The date on which the Reserve bank of India (RBI) introduced the new Rs.2000 notes in 2016 is  
 (1) November 7      (2) November 8  
 (3) November 9      (4) November 10

**Answer (2)**

87. The expansion of 'WTO' is  
 (1) Web Trade Organisation  
 (2) World Tourism Organisation  
 (3) World Trade Organization  
 (4) Web Tourism Organisation

**Answer (3)**

88. Which of the following is NOT made from Petroleum?  
 (1) Artificial fibres      (2) Mica  
 (3) Vaseline      (4) Kerosine

**Answer (2)**

89. Who is the present Governor of RBI?  
 (1) Dr. Urjit Patel      (2) Dr. Raghuram Rajan  
 (3) Dr. Subba Rao      (4) Dr. Ranga Rajan

**Answer (1)**

90. Which one of the following is the biggest agro-based industry in India?  
 (1) Rubber      (2) Cotton Textiles  
 (3) Sugar      (4) Jute

**Answer (2)**

91. The biggest Commercial Bank in India is  
 (1) Oriental bank of Commerce (OBC)  
 (2) HDFC bank  
 (3) State bank of India (SBI)  
 (4) Federal bank

**Answer (3)**

92. Which one of the following is NOT accepted as a security against loans by the Commercial Banks.  
 (1) Approved salary certificate  
 (2) Gold  
 (3) Land Title Document  
 (4) Debit Card

**Answer (4)**

93. Find out the country where Direct Democracy existed.  
 (1) India      (2) England  
 (3) Greece      (4) Arabia

**Answer (3)**

94. Which among the following is formed by indirect election?  
 (1) Legislative Assembly (2) Rajya Sabha  
 (3) Lok Sabha      (4) None of these

**Answer (2)**

95. Number of Lok Sabha Constituencies in Kerala.  
 (1) 19      (2) 8  
 (3) 540      (4) 20

**Answer (4)**

96. Who among the following is eligible for Voting Right in India?  
 (1) Any person, 21 years of age  
 (2) Any Indian citizen who has completed 18 years of age  
 (3) Any person with formal education, who has completed 18 years of age  
 (4) A person who has completed 18 years of age

**Answer (2)**

97. To which of the following categories does the District Collector belong?  
 (1) All India Service      (2) Central Service  
 (3) State Service      (4) None of these

**Answer (1)**

98. The First Election Commissioner of Independent India.  
 (1) T N Seshan      (2) V S Ramadevi  
 (3) R V Khuraili      (4) Sukumar Sen

**Answer (4)**

99. The minimum age limit for a person contesting elections to the Rajya Sabha.  
 (1) 30      (2) 25  
 (3) 18      (4) 35

**Answer (1)**

100. Which among the following is NOT a function of the Election Commission?  
 (1) To audit the Election Expenditure  
 (2) To prepare the Voters list  
 (3) To issue Election Symbols  
 (4) To choose the candidates

**Answer (4)**



# Aakash

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**Ph.: 011-47623456 Fax : 011-47623472**

Time : 90 Min.

Max. Marks : 100

## Answers & Solutions for NTSE (Stage-I) 2017-18

**PART-II (Mental Ability and Language Test)**

### INSTRUCTIONS TO CANDIDATES

1. Use blue/black ball point pen only. There is no negative marking.
2. You have to answer 100 questions in this test.
3. This test has two parts namely Mental Ability Test (MAT) and Language Test.  
 Part-I : MAT : 1 - 50 questions  
 Part-II : Language : 101 - 150 questions
4. Select the most suitable answer for each question and completely darken the circle corresponding to the correct alternative as shown below :

Example :

Correct way :

Q. No.	Alternatives
1	① ② ● ④

Wrong way :

Q. No.	Alternatives
1	⊗ ⊖ ③ ④

5. All questions carry ONE MARK each.
6. There is no negative mark. Every correct answer will be awarded one mark.
7. Do not write your name on any part of the question booklet or on the answer sheet.





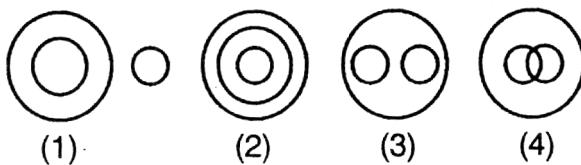
20. This question consists of two words that have a certain relationship with each other. Select the options pair which has the same relationship as the pair of words in the questions.

Karnataka : State

- (1) Paper : Book      (2) Fire : Smoke  
(3) Water : River      (4) Gun : Weapon

**Answer (4)**

**Directions :** Questions (21-22) Which of the following figures represents the relationship among the three classes.

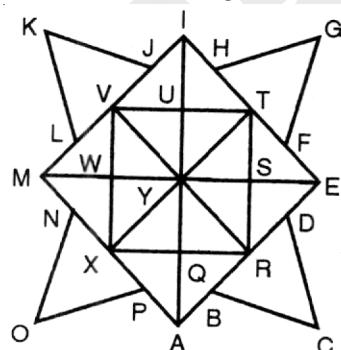


21. Nitrogen, Ice, Air

**Answer (1)**

22. Forest, Earth, Mountains

**Directions (Q.23 to Q.25) :** are based on the given figure. Study the figure. There is some relationship between two terms to the left of :: and the same relationship holds between two terms to the right. One term to the right of :: is missing. Find out the missing term?



**Answer (4)**

23. LKJ : AYE :: HGF : ?

- (1) PXN      (2) APX  
(3) WXQ      (4) MYA

**Answer (4)**

24. VWST : XAR :: ? : RET

- (1) WSRX      (2) QRTU  
(3) XQUV      (4) RSWS

**Answer (3)**

25. IQR : AUV :: MSR : ?

- (1) XYQ      (2) BCD  
(3) RSE      (4) EWV

**Answer (4)**

26. In a queue Shekar is 12th from the back. Peter's place is 20th from the front. Vishal is standing in the middle of the two. What could be the minimum number of children standing in the queue?

- (1) 23      (2) 25  
(3) 20      (4) 21

**Answer (4)**

27. In a group of cats and crows, the number of legs is 12 more than twice the number of heads. The number of cats is

- (1) 6      (2) 4  
(3) 5      (4) 8

**Answer (1)**

28. If the letters of the following words are arranged in a alphabetical order and the group of letters so formed are rearranged in a dictionary which word should come third?

- (1) Read      (2) Draw  
(3) Back      (4) Play

**Answer (2)**

29. In the following question two expression on either side of the sign (=) will have the same value if two terms are replaced as given in the alternatives. Find out the correct alternative option.

$$2 + 5 - 3 \times 4 \div 4 = 2 + 3 \times 12 - 4$$

- (1) 2 and 3, '+' and 'x'      (2) 2 and 4, '+' and 'x'  
(3) 2 and 4, '+' and '+'      (4) 3 and 4, '+' and '−'

**Answer (1)**

30. Mohan walks from his house at a speed of 5 kmph, speed and reaches his office 10 minutes late. If his speed had been 5 kmph he would have reached 10 minutes early. What is the distance to his office from his house?

- (1) 8 km      (2) 15 km  
(3) 12 km      (4) 10 km

**Answer (4)**

**Directions (Q.31 to Q.32) :**

A \* B means 'A is the daughter of B'

A # B means 'A is the son of B'

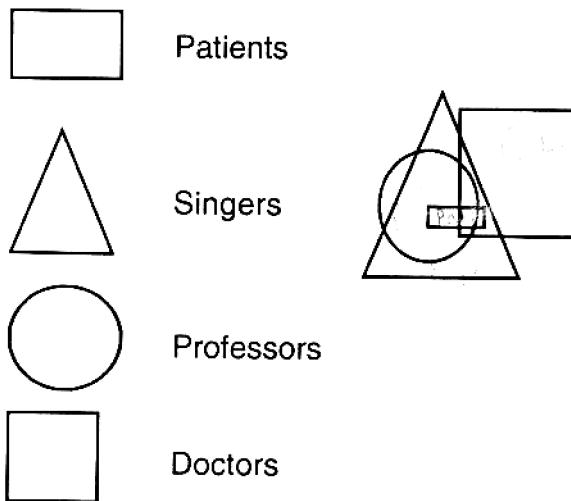
31. If L @ M # P @ N, which of the following is not true?
- P is the mother of M
  - N is the husband of P
  - L is the wife of M
  - M is the daughter of P

**Answer (4)**

32. If C # S @ P # W \* Q. What is W to C?
- |                 |              |
|-----------------|--------------|
| (1) Father      | (2) Mother   |
| (3) Grandmother | (4) Daughter |

**Answer (3)**

**Directions (Q.33 to Q.34) :** Study the following diagram carefully and choose the correct answer for the following questions.



33. Which of the following statement is true?
- No patient is a professor
  - All professors are doctors
  - All doctors are singers
  - Some patients who are singers are also doctors as well as professors

**Answer (4)**

34. Which of the following statement is not true?
- Some doctors are not singers
  - All patients are singers
  - Patients who are doctors are singers
  - All doctors are singers

**Answer (4)****35. Directions (Q.35) :**

In this question there are two statements followed by four conclusions I, II, III and IV. You have to decide which of the given conclusions logically follows from the given statements?

**Statements :**

Some rabbits are birds.

All birds are vegetables.

**Conclusions:**

- Some birds are rabbits
  - No bird is a rabbit
  - Some vegetables are rabbits
  - All vegetables are rabbits
- Only I follows
  - Either I or II follows
  - Either III or IV follows
  - I and III follows

**Answer (4)**

**Directions (Q.36 to Q.37) :** Read the following statements and answer the question given.

Anand has five books P, Q, R, S and T each of a different weight.

P weighs twice as much as Q

Q weighs 3 and half times as much as R

R weighs half as much as S

S weighs half as much as T

T weighs less than P but more than R

36. S is heavier than which of the following books.

- R
- P
- Q
- T

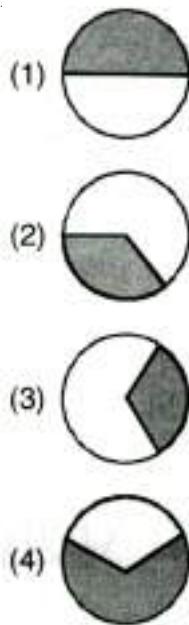
**Answer (1)**

37. Which of the following represents the descending order of the weights of the books?

- PQTRS
- PTQSR
- TQPSR
- RSQTP

**Answer (2)**

38. In a class half of the students participate in the music competition and half of the remaining participate in the dance competition. Half of the students participating in the music competition and half of the students participating in the dance competition participate in the drama competition. Then the shaded portion of which of the following diagrams represents the students participating in the drama competition?



**Answer (2)**

39. Choose from the options, the box that should be formed when figure A is folded.

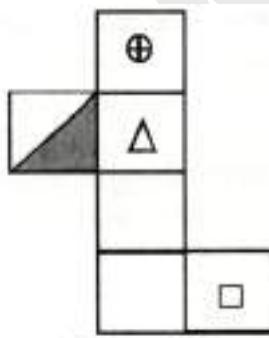
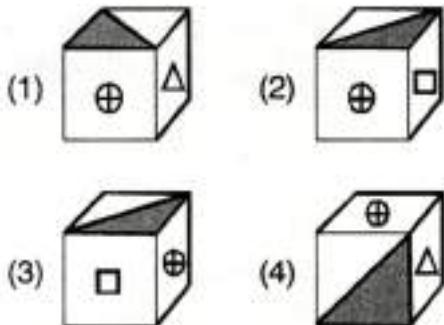


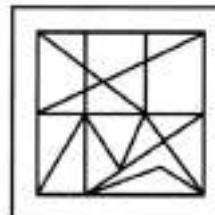
Figure (A)



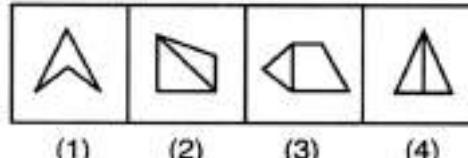
**Answer (4)**

40. If March 15, 2006 was a Wednesday, what day of the week is April 10, 2010?  
 (1) Monday (2) Wednesday  
 (3) Saturday (4) Sunday

**Answer (3)**

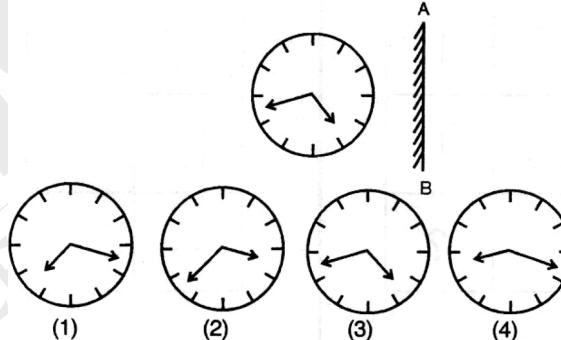


41.



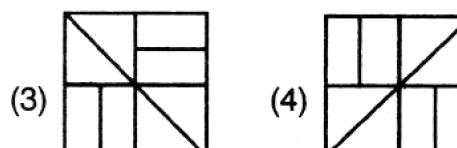
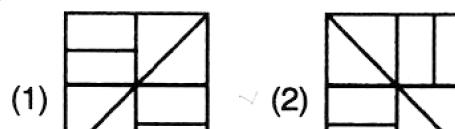
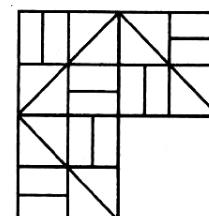
**Answer (3)**

42. Which of the options is the mirror image of the given figure when the mirror is held at the AB position?



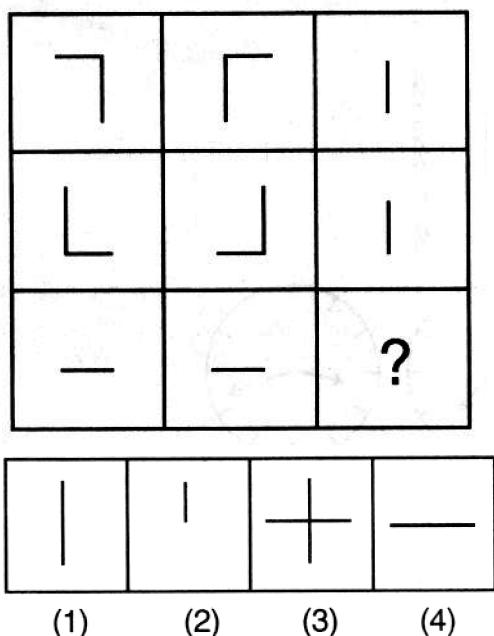
**Answer (1)**

43. In the following question select one of the options which fits into the blank space of the given pattern.



**Answer (3)**

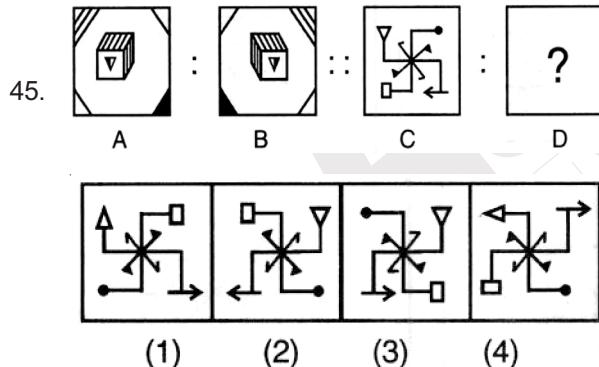
44. Choose the correct alternative from amongst the options which completes the figures matrix.



(1) (2) (3) (4)

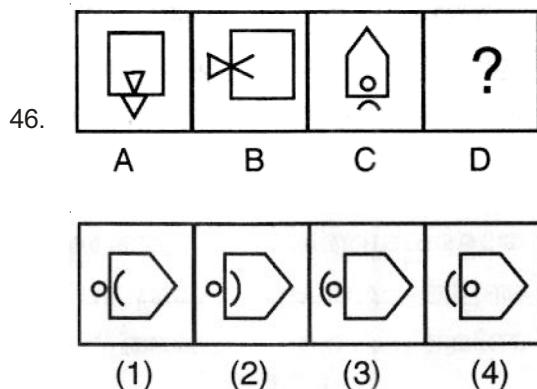
**Answer (4)**

**Directions (Q.45 to Q.46) :** There is a relationship between figures A and B. Find the figure which establishes a similar relationship between C and D.



(1) (2) (3) (4)

**Answer (3)**



(1) (2) (3) (4)

**Answer (1)**

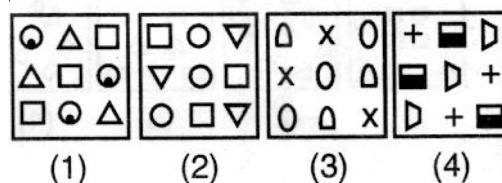
47. Select three out of the following five alternatives figures A, B, C, D, E which together from a complete square.



- (1) ACD      (2) CDE  
(3) ABC      (4) BCE

**Answer (1)**

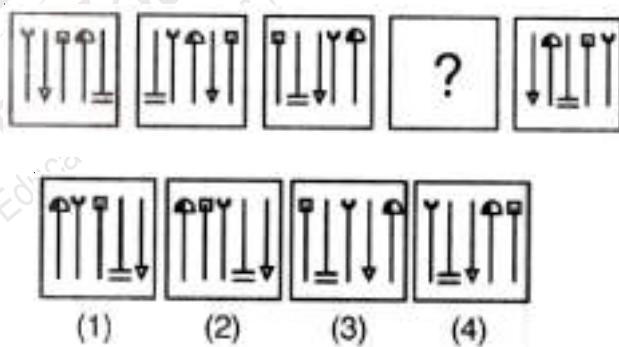
48. Find the odd one out.



- (1) (2) (3) (4)

**Answer (2)**

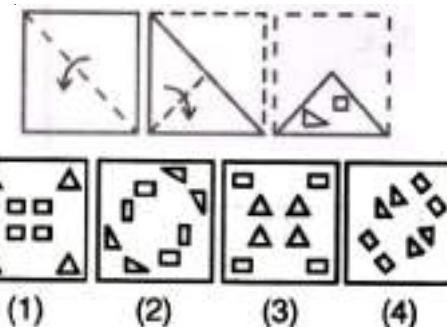
49. A sequence of figures is given below and a question mark is given in the place of the fourth figure. Which one of the options marked 1,2,3,4 should come in the place of the question mark in the sequence?



- (1) (2) (3) (4)

**Answer (2)**

50. A piece of paper is folded as shown below ad cuts are made as marked. What would be the paper be like when unfolded? Choose the answer from the options.



- (1) (2) (3) (4)

**Answer (2)**

## PART-II : ENGLISH LANGUAGE

**Questions (101 to 105) :** Read the anecdote carefully and answer the questions that follow :

A young man took his father to a restaurant for an evening dinner. Father being very old and weak, dropped food on his shirt and trousers while eating. Other diners watched in disgust while the son remained calm.

After they finished eating, the son who was not at all embarrassed, quietly took his father to the washroom, wiped the food particles, removed the stains, combed his hair and fitted his spectacles firmly. When they came out, the entire restaurant was watching them in dead silence.

The son settled the bill and started walking out with his father. At that time, an old man amongst the diners called out to the son and asked him, "Don't you think you have left something behind?" The son replied, "No air, I haven't". The son replied, "yes, you have ! You left a lesson for every son and hope for every father". The restaurant went silent.

101. The father was unable to eat properly because \_\_\_\_\_

- (1) he was eating at the restaurant
- (2) he was weak and ailing
- (3) the other diners were watching him
- (4) he didn't like the food

**Answer (2)**

102. How did the son behave at the restaurant \_\_\_\_\_

- (1) he was embarrassed
- (2) he was calm and quiet
- (3) he threatened the other diners
- (4) he watched others in disgust

**Answer (2)**

103. What quality of the son is revealed in the story \_\_\_\_\_

- (1) Duty bound and dedicated
- (2) Loyal and dependable
- (3) Helping and devoted
- (4) All the above

**Answer (4)**

104. 'You left a lesson for a every son and hope for every father' this means the son \_\_\_\_\_

- (1) Left something the restaurant
- (2) Left something for the old people
- (3) Became the model for the others to follow
- (4) Left some money after paying the bill

**Answer (3)**

105. The word from the passage that mean 'ashamed' is \_\_\_\_\_

- (1) Embarrassed
- (2) Disgusted
- (3) Retorted
- (4) Dropped

**Answer (1)**

**Questions (106 to 111) :** Read the passage given below and answer the questions that follow.

Ancient Egypt consisted of the desert regions surrounding the Nile. This region was the centre of one of the great early civilizations. The civilization was based on farming, particularly the growing of cereals such as what, which was used to make bread. The soil near the Nile was very fertile. However, when the Nile flooded, extra water had to be drained away. On the other hand, during the dry parts of the year, the land needed to be irrigated with water from the Nile. Drainage and irrigation necessitated large scale cooperative effort. Because people had to work together on these projects they also learned to organize their cities and government.

About 7,000 years ago, the early Egyptians introduced the use of copper and other metals, the first writing and the first sea going ships. 5,200 years ago, Egypt was divided into two states. The two states were combined by a pharaoh named Menes. During the next thousand years the Egyptians developed a strong system of government. They also began to build the pyramids that can still be seen today.

Egypt began to control areas in other parts of the Middle East about 3,500 years ago, but after 500 years it lost control of these areas. The Romans invaded and conquered Egypt about 2,000 years ago. Approximately 1,400 years ago, it was conquered by the Arabs at the Battle of Heliopolis and became an Islamic country.

106. The growing of cereals by the Egyptian \_\_\_\_\_ years ago.

- (1) fishing
- (2) farming
- (3) marketing
- (4) construction

**Answer (2)**

107. Pyramids were built by the Egyptians \_\_\_\_\_ years ago.

- (1) between 7,000 and 5,200
- (2) between 5,200 and 4,200
- (3) between 3,500 and 3,000
- (4) between 3,000 and 1,400

**Answer (3)**

108. The ancient Egyptians were the first people to

- (1) grow wheat
- (2) make bread
- (3) use irrigation
- (4) use copper

**Answer (4)**

109. The reason the Ancient Egyptians had well-organized governments and cities is that

- (1) the soil near the Nile was very fertile
- (2) the Pharaoh Menes united Egypt
- (3) the civilization was based on farming
- (4) people learned to cooperate by building drainage and irrigation systems

**Answer (4)**

110. The Romans invaded and conquered Egypt about 2,000 years ago. The word 'conquer' means

- (1) occupy
- (2) vacate
- (3) evacuate
- (4) engage

**Answer (1)**

111. The word opposite in meaning to 'barren' is

- (1) wet
- (2) fertile
- (3) dry
- (4) damp

**Answer (2)**

**Questions 112-117:** Complete the following passage choosing the correct phrasal Verbs from the options given.

At the railway station I \_\_\_\_\_ (112) \_\_\_\_\_ my long lost friend who \_\_\_\_\_ (113) \_\_\_\_\_ a popular film star. At first I couldn't \_\_\_\_\_ (114) \_\_\_\_\_ who he was. Then we \_\_\_\_\_ (115) \_\_\_\_\_ talking about our school life. He \_\_\_\_\_ (116) \_\_\_\_\_ my offer to have dinner at a restaurant as he had to visit his dinner are a restaurant as he had to visit his uncle. He promised me that he would \_\_\_\_\_ (117) \_\_\_\_\_ as soon as he could.

112. (1) come up with

- (2) come across
- (3) come to
- (4) come down

**Answer (2)**

113. (1) take after

- (2) take down
- (3) take up
- (4) take in

**Answer (1)**

114. (1) make up

- (2) make out
- (3) make in
- (4) make out of

**Answer (2)**

115. (1) go on

- (2) go up
- (3) go off
- (4) go with

**Answer (1)**

116. (1) turn down

- (2) turn up
- (3) turn to
- (4) turn out

**Answer (1)**

117. (1) get on

- (2) get at
- (3) get back
- (4) get out

**Answer (3)**

Choose the correct answer from the options given.

118. what \_\_\_\_\_ you like to have for supper?

- (1) will
- (2) might
- (3) would
- (4) shall

**Answer (3)**

119. There are other people living in this building \_\_\_\_ ourselves.

- (1) beside
- (2) besides
- (3) before
- (4) around

**Answer (2)**

120. The boy fell fainted. Immediately the doctor was \_\_\_\_\_

- (1) sent off
- (2) sent for
- (3) sent in
- (4) sent through

**Answer (2)**

**Questions 121 – 124 :** The farmers were informed by the weather department that it would rain \_\_\_\_ (121). The information is usually accurate. \_\_\_\_ (122) it did not rain for several days. When \_\_\_\_ (123) the rain did come, it was inadequate \_\_\_\_ (124) all the crops were damaged.

- 121. (1) frequently
- (2) much
- (3) soon
- (4) well

**Answer (3)**

- 122. (1) however
- (2) but
- (3) though
- (4) instead

**Answer (2)**

- 123. (1) definitely
- (2) in the end
- (3) at last
- (4) lastly

**Answer (3)**

- 124. (1) and
- (2) also
- (3) even
- (4) that

**Answer (4)**

125. Children enjoy \_\_\_\_\_ cartoon channels on TV.

- (1) watching
- (2) watch
- (3) to watch
- (4) watched

**Answer (1)**

126. \_\_\_\_\_ everyone I know plays a game on a mobile phone.

- (1) The most
- (2) Almost
- (3) All
- (4) Most of

**Answer (2)**

127. Can you tell me where \_\_\_\_\_?

- (1) is it the fuel station
- (2) the fuelk station is
- (3) it is the fuel station
- (4) is the fuel station

**Answer (2)**

128. The one-day match caused a lot of \_\_\_\_\_

- (1) excited
- (2) exciting
- (3) excite
- (4) excitement

**Answer (4)**

129. This vehicle is \_\_\_\_\_ one we have seen all the week.

- (1) cheaper than
- (2) the cheap
- (3) the cheapest
- (4) the cheaper

**Answer (3)**

130. The online parcel hasn't reached yet.

- I wish I \_\_\_\_\_ it earlier
- (1) was booking
  - (2) had booked
  - (3) am booking
  - (4) have booked

**Answer (2)**

131. The boy \_\_\_\_\_ TV all day.

- (1) viewed
- (2) looked
- (3) saw
- (4) watched

**Answer (4)**

132. My school bag would have been much lighter if I \_\_\_\_\_ in it all my books.

- (1) don't pack
- (2) didn't pack
- (3) hadn't packed
- (4) not pack

**Answer (3)**

133. I was \_\_\_\_\_ after my Dad's best friend.

- (1) called
- (2) termed
- (3) labelled
- (4) named

**Answer (4)**

134. The team hasn't come back to school

- (1) still
- (2) already
- (3) yet
- (4) till

**Answer (3)**

135. I \_\_\_\_\_ a mistake in the last day's test.

- (1) made
- (2) done
- (3) did
- (4) make

**Answer (1)**

136. He is looking \_\_\_\_\_ a present for his grandmother.

- (1) for
- (2) at
- (3) in
- (4) on

**Answer (1)**

137. My Maths Teacher was good enough to \_\_\_\_\_ my mistake.

- (1) oversee
- (2) overtake
- (3) overdo
- (4) overlook

**Answer (1)**

138. Newspapers are \_\_\_\_\_ to people's doors every day.

- (1) taken
- (2) distributed
- (3) delivered
- (4) handed

**Answer (3)**

139. Politicians pretend to ignore opinion

- (1) votes
- (2) figures
- (3) numbers
- (4) polls

**Answer (4)**

140. He'd like to reveal the fact if it is required. The expansion of 'He'd' is

- (1) He did
- (2) He had
- (3) He could
- (4) He would

**Answer (4)**

141. The flight will \_\_\_\_\_ soon to Chennai.

- (1) start up
- (2) get off
- (3) take up
- (4) take off

**Answer (4)**

142. Would you mind \_\_\_\_\_ ?

- (1) to keep the windows open ?
- (2) keeping the windows open ?
- (3) keep the windows open ?
- (4) kept the windows open ?

**Answer (2)**

143. Rani \_\_\_\_\_ in this school since 2005.

- (1) had been working
- (2) has been working
- (3) is working
- (4) was working

**Answer (2)**

144. Unless you work hard you cannot realise the goal. This means

- (1) If you do not work hard you cannot realise the goal
- (2) If you work hard you cannot realise the goal
- (3) If you do not work hard you can realise the goal
- (4) If you worked hard you cannot realise the goal

**Answer (1)**

145. If you controlled your expense you \_\_\_\_\_ a lot of money.

- (1) can save
- (2) could save
- (3) must save
- (4) will

**Answer (2)**

146. 'We have been practising the skit for three hours'. The right question to get this response is

- (1) How long have you been practising the skit ?
- (2) How far have you been practising the skit ?
- (3) How after have you been practising the skit ?
- (4) How much time have you been practising the skit ?

**Answer (1)**

147. Which of the following is grammatically acceptable?

- (1) have you come yesterday ?
- (2) do you come yesterday ?
- (3) did you come yesterday ?
- (4) you come yesterday ?

**Answer (3)**

148. "Have you seen my spectacles" ? Grandfather asked me. This can be reported as

- (1) Grandfather asked me if I had seen his spectacles
- (2) Grandfather asked me if I saw his spectacles
- (3) Grandfather asked me if have seen his spectacles
- (4) Grandfather asked me if I see his spectacles

**Answer (1)**

149. The famous book titled 'The Story of My Experiments with Truth' is

- (1) a science fiction
- (2) a historical novel
- (3) a biography
- (4) an autobiography

**Answer (4)**

150. The book titled 'My Story' is written by : \_\_\_\_\_

- (1) Mulkraj Anand
- (2) Kamal Das
- (3) Nissim Ezekiel
- (4) Partasarathy

**Answer (2)**

