NATIONAL TALENT SEARCH EXAMINATION (NTSE_2019-20) STAGE -1

Date: 17.11.2019

Max. Marks: 100

- A house hold consumes 1 kWh of energy per day. This energy in joules is
 - (1) 3.6×10^5 J (2) 6.3×10^5 J
 - (3) 6.3×10^6 J (4) 3.6×10^6 J
- 2. Resistors are connected as shown in the circuit diagram.

The effective resistance between A and B is



- (3) 11 Ω (4) 5.5 Ω
- Two steel balls of mass 1 kg and 2 kgs and a lead ball of 10 kgs are released together from the top of tower 30 m high. Assuming the path to be in vacuum:
 - (1) The lead ball reaches the ground earlier
 - (2) The 1 kg iron ball reaches the ground earlier
 - (3) All the balls reach the ground simultaneously
 - (4) The 2 kgs steel ball reaches the ground earlier
- The maximum number of 60 W bulbs that can be run from the main supply of 220 V if you do not want to overload a 5 A fuse:
 - (1) 18 (2) 11
 - (3) 20 (4) 10
- 5. The diagram shows a current carrying wire passing through the centre of a square cardboard. The magnetic field at points A , B and C is:



Time allowed: 120 mins

- (1) Equal at A,B and C
- (2) Stronger at B than A, equal at B and C
- (3) Stronger at B than C, weaker at B than A
- (4) Stronger at B than A, weaker at C than A
- The solar constant at a place is 1.4 kW/m². The solar energy received by an area of 4 m² per second at this place is
 - (1) 6.5 kJ (2) 6.5 J
 - (3) 5.6 J (4) 5.6 kJ
- 7. While performing an experiment of dispersion of white light through a prism, four students represented the dispersion pattern as shown below. Identify the correct representation:



- 8. A spherical mirror and a thin spherical lens each of focal length –10 cm are given. The mirror and lens are likely to be:
 - (1) The mirror is concave mirror and the lens is concave lens
 - (2) The mirror is convex mirror and the lens is convex lens
 - (3) The mirror is convex mirror and the lens is concave lens
 - (4) The mirror is concave mirror and the lens is convex lens

PAPER : SAT

 In the following diagram 'M' is an mirror and 'P' is an object and 'Q' is its magnified image of 'P' formed by the mirror. The mirror 'M' is



- (1) Concave mirror
- (2) Convex mirror
- (3) Planar mirror
- (4) Plano convex mirror
- 10. A person takes hot coffee by pouring it into the saucer when he is in hurry because he knows that:
 - (1) The latent heat of steam is high and the coffee will become cold quickly
 - (2) The evaporation increases with the increase in surface area and the cooling of coffee is faster
 - (3) Part of heat will be absorbed by saucer and coffee become cold quickly
 - (4) The high specific heat of water makes the coffee cold quickly
- The energy released when 3 g of a material is completely converted into energy during a nuclear reaction is (given, speed of light = 3 × 10⁸ m/sec):

(1)	27 × 10 ¹⁶ J	(2) 27 × 10 ¹⁴ J
(3)	27 × 10 ¹⁹ J	(4) 27 × 10 ¹³ J

12. Consider the following Assertion and the Reason and select the correct alternative:

Assertion (A): Alloys are used in electric heating devices.

Reasons (R): Alloys do not oxidise readily at high temperature.

- (1) A is true and R is true but R is not the correct explanation of A
- (2) Both A and R are false
- (3) Both A and R are true and R is the correct explanation of A
- (4) A is false R is true

13. Consider the following statements and select the correct alternative:

Statement (A): The frequency of the sound wave whose wavelength is 1.5 cm with speed 339 m/s is 22600 Hz.

Statement (B): The given sound is audible to human being.

- (1) Statement A is true, Statement B is false
- (2) Both statements A and B are true
- (3) Statement A is false, Statement B is true
- (4) Both Statements A and B are false
- 14. A reaction is described below,

 $2Na + X \rightarrow$ Sodium ethoxide + Hydrogen

$$X \xrightarrow{Hot} CH_2 = CH_2 + H_2O$$

Identify 'X':

- (1) $CH_3 COOH$ (2) $CH_3 CHO$
- $(3) \quad CH_3 CH_2 OH \quad (4) \quad CH_3 CH_3 \\$

15. Match the salts with their common name.

Hydrated Salt Common Name MgSO₄.7H₂O А i Gypsum CuSO₄.5H₂O В ii Green Vitriol FeSO₄.7H₂O С iii Blue Vitriol CaSO₄.2H₂O D iv Epsum

- (1) A-iv, B-iii, C-ii, D-i
- (2) A-iv, B-ii, C-i, D-iii
- (3) A-iv, B-ii, C-iii, D-i
- (4) A-iv, B-i, C-iii, D-ii
- 16. The volume occupied by half a mole of a gas at standard temperature and pressure is:
 - (1) 5.6 L (2) 11.2 L
 - (3) 22.4 L (4) 2.8 L

17. Choose the correct statements about the given chemical reaction:

 $3MnO_2(S) + 4AI(S) \rightarrow 3Mn(I) + 2AI_2O_3 + Heat$

- a) Reaction is exothermic.
- b) Al is acting as oxidizing agent.
- c) MnO2 is getting reduced.
- d) Al is more reactive than Mn.
- (1) a, c and d (2) a, b and c
- (3) a, b and d (4) a, b c and d
- 18. NH_3 gas can be dried by passing it over:
 - (1) Concentrated H₂SO₄
 - (2) P₂O₅
 - (3) Anhydrous CaCl₂
 - (4) CaO
- 19. $X + Y \rightarrow Z + SO_2$

 $X + Z \rightarrow Cu + SO_2$

Identify X, Y and Z:

- (1) $X Cu_2O, Y H_2SO_4$ and $Z Cu_2S$
- (2) $X Cu_2S, Y H_2S$ and $Z Cu_2O$
- (3) $X Cu_2S, Y O_2$ and $Z Cu_2O$
- (4) $X Cu_2S, Y H_2SO_4$ and $Z Cu_2O$
- 20. Identify the correct order of elements according to their metallic character:
 - (1) K > Na > Li > Mg (2) K > Na > Mg > Li
 - (3) K > Mg > Na > Li (4) K > Li > Na > Mg
- 21. Consider the elements of group-14. Choose the correct alternative:
 - a) Si and Ge are semi conductors
 - b) Carbon and silicon are non-metals
 - c) Sn and Pb are metals
 - d) Si and Ge are metalloids
 - (1) a, b, c and d (2) a, b and d
 - (3) a, c and d (4) a, b and c

- 22. The following statements applies to SO_2 but NOT to H_2S .
 - (1) The gas is soluble in water
 - (2) It is an oxidising as well as a reducing agent
 - (3) It is a dibasic acid
 - (4) It is easily liquefiable
- 23. **Statement (A):** Iron does not burn on heating.

Statement (B): Iron fillings burn vigorously, when sprinkled in the flame of the burner.

- (1) Both the statements 'A' and 'B' are true
- (2) Both the statements 'A' and 'B' are false
- (3) Statement 'A' is true, but statement 'B' is false
- (4) Statement 'A' is false, but statement 'B' is true
- 24. **Assertion (A):** Silver articles becomes black after some time when exposed to air.

Reason (R): It reacts with oxygen in the air to form a coating of silver oxide.

- (1) 'A' and 'R' are correct and 'R' is the correct explanation of 'A'
- (2) 'A' and 'R' are correct, but 'R' is not the correct explanation of 'A'
- (3) 'A' is true but 'R' is false
- (4) Both 'A' and 'R' are false
- 25. **Assertion (A):** Calcium (Z=20) and Argon (Z=18) are examples for isobars.

Reason (R): The total number of nucleons is same in the atoms of this pair of elements.

Select the correct option from the given alternatives:

- (1) 'A' and 'R' are correct and 'R' is the correct explanation of 'A'
- (2) 'A' and 'R' are correct, but 'R' is not the correct explanation of 'A'
- (3) 'A' is true but 'R' is false
- (4) Both 'A' and 'R' are false

- 26. The compounds which do not undergo hydrogenation
 - (1) C_6H_{12} and C_4H_{10} (2) C_8H_{10} and C_5H_{12}
 - (3) $C_{13}H_{24}$ and $C_{14}H_{28}$ (4) $C_{14}H_{30}$ and C_5H_{12}
- 27. **Assertion (A):** During the day plants do not release CO₂.

Reason (R): CO₂ generated during respiration is used for photosynthesis.

- (1) 'A' is true and 'R' is false
- (2) 'A' is false and 'R' is true
- (3) Both 'A' and 'R' is true and 'R' explains 'A'
- (4) Both 'A' and 'R' is true but 'R' doesn't explain 'A'
- 28. The following statements about blood vessels is/are correct.
 - (A) Arteries have thin and less muscular walls
 - (B) Walls of veins are non-elastic
 - (C) Arteries have no valves in their inner lining
 - (D) Veins do not collapse when empty
 - (1) A and D (2) Only D
 - (3) B and C (4) A and C
- 29. Remarkable reduction in blood pressure affects normal functioning of the kidney as follows:
 - (1) Reduces secretion of nitrogenous wastes
 - (2) Reduces renal filtration
 - (3) Reduces reabsorption of useful materials
 - (4) Reduces tubular secretion.
- 30. The changes that are likely to happen in the plant in the following picture:



- (A) A hormone abscisic acid is synthesized at the shoot tip
- (B) When light is coming from one side of the plant, auxin diffuses towards the shady side of the plant
- (C) Abscisic acid helps the cells to grow longer
- (D) Cells grow longer on the side of the shoot which is away from light

Select the correct option.

- (1) A and B (2) B and C
- (3) C and D (4) B and D
- 31. Choose the most appropriate statement from the options listed below that explains the factors which affects transpiration.
 - (A) If the wind blows faster, the water vapour released during transpiration is factor.
 - (B) Increase in atmospheric pressure increases the rate of transpiration.
 - (C) Decrease in temperature allows more water to evaporate.
 - (D) High humidity in the air increases the rate of transpiration.
 - (1) A only (2) B and C only
 - (3) D only (4) A and D only
- 32. Match column-I with column-II and identify the correct answer:

	Column-l	Со	lumn-ll
Α	Insulin	i	Promotes tissue metabolism
В	Thyroxine	ii	Stimulates milk secretion
С	Antidiuretic Hormone (ADH)	iii	Testosterone secretion
D	Oxytocin	iv	Promotes glucose utilization by the body cells
		v	Increase reabsorption of water from kidney

- (1) A-iv, B-i, C-v, D-ii (2) A-ii, B-iii, C-iv, D-i
- (3) A-iii, B-v, C-i, D-ii (4) A-v, B-i, C-ii, D-iii
- 33. The correct route that sperm follows when it releases from the testis of a mammal:
 - (1) Vas deferens \rightarrow Epididymis \rightarrow Urethra
 - (2) Urethra \rightarrow Epididymis \rightarrow Vas deferens
 - (3) Epididymis \rightarrow Urethra \rightarrow Vas deferens
 - (4) Epididymis \rightarrow Vas deferens \rightarrow Urethra
- 34. Pattern baldness is more common in males than in females due to:
 - (1) dominant genes of such traits are found in the 'X' chromosome
 - (2) dominant genes of such traits are found in the 'Y' chromosome
 - (3) recessive genes of such traits are found in the 'X' chromosome
 - (4) recessive genes of such traits are found in the 'Y' chromosome
- 35. An useful biological indicator of SO_2 pollution:
 - (1) Bryophytes (2) Algal bloom
 - (3) Lichens (4) Pseudomonas
- 36. Animal species that is being conserved in 'Dachigam National Park':
 - (1) Musk deer
 - (2) Golden Oriole
 - (3) Hangul or Kashmir stag
 - (4) Tiger
- 37. The correct sequence of aerobic respiration in yeast is:
 - (1) Glucose $\xrightarrow{Cytoplasm}$ Pyruvate $\xrightarrow{Mitochondria}$ CO₂ + Water + Energy
 - (2) Glucose $\xrightarrow{Cytoplasm}$ Pyruvate $\xrightarrow{Cytoplasm}$ Ethanol + CO₂+ Energy
 - (3) Glucose <u>Cytoplasm</u> → Pyruvate <u>Mitochondria</u> Lactic Acid + Energy
 - (4) Glucose $\xrightarrow{Cytoplasm}$ Pyruvate $\xrightarrow{Cytoplasm}$ Ethanol + CO₂

- 38. Some dinosaurs had feathers although they couldn't fly but birds have feathers that help them to fly. In the context of evolution this means:
 - (1) Reptiles have evolved from birds
 - (2) There is no evolutionary connection between reptiles and birds
 - (3) Birds have evolved from reptiles
 - (4) Feathers are homologous structures in both the organisms
- 39. Examine the following statements and select the correct option:

Statement (A): Speciation may take place when variation is combined with geographical isolation. **Statement (B):** Traits in one individual may not be inherited separately.

- (1) 'A' is true and 'B' is false
- (2) 'A' is false and 'B' is true
- (3) Both 'A' and 'B' true
- (4) Both 'A' and 'B' false
- 40. The fluid that protects the developing embryo:
 - (1) Vitreous humour (2) Aqueous humour
 - (3) Endolymph fluid (4) Amniotic fluid
- 41. Identify the given regions in the map with their corresponding European settlements in India and select the correct option using the codes given below:



- (1) A Ahmedabad, B Bharuch, C -Machlipatnam, D - Chandranagor
- (2) A Chandranagor, B Ahmedabad, C Bharuch, D - Machlipatnam
- (3) A Bharuch, B Chandranago, C Machlipatnam, D Ahmedabad
- (4) A Machlipatnam, B Broach, C Ahmedabad, D - Chandrangor

- 42. Identify the correct statements with regard to the Solanki dynasty:
 - A. Chandradeva was the founder of this dynasty.
 - B. Moolaraja II defeated Mohammed Ghazni near Mount Abu.
 - C. During the rule of this dynasty, the famous Jain Scholar Hemachandra compiled Prakruth dictionary 'Deshimala'.
 - D. Ullaf Khan and Nusrath Khan, the military generals of Allauddin Khilji defeated Karnadeva
 - (1) Only A, B and C are correct
 - (2) Only B, C and D are correct
 - (3) Only A, C and D are correct
 - (4) Only C and D are correct
- 43. The correct family chart in ascending order of the important rulers of Shatavahana dynasty is
 - (1) Simukha, Gautamiputra Shatakarni,

Vashistaputra Pulamayi, Yajnashri Shatakarni

- (2) Simukha, Vashistaputra Pulamayi, Gautamiputra
- (3) Simukha, Yajnashri Shatakarni, Vashistaputra Pulamayi, Gautamiputra Shatakarni
- (4) Simukha, Vashistaputra Pulamayi, Yajnashri shatakarani, Gautamiputra Shatakarni
- 44. Read the given statements and select the correct answer:

Assertion (A): There was a Sun temple in all Inca centres.

Reason (R): The people of Inca believed that the Sun God was the link between the people and God Veerakocha.

- (1) 'A' is true 'R' is false
- (2) 'A' is false and 'R' is true
- (3) Both 'A' and 'R' are true and 'R' is the correct explanation of 'A'
- (4) Both 'A' and 'R' are true and 'R' is not the correct explanation of 'A'

- 45. Read the given statements and indentify the correct option related to them:
 - A. It has Mukhamantapa and Garbhagruha with a Nandi idol in front of this historical temple.
 - B. Garbhagruha on top of the Garbhagruha is a special feature of this temple.
 - C. Henry cousins, the art critic observed the sculpture of Garuda on the door of Garbhagruha and called it a Vaishnava temple.
 - D. Since a saint lived here for a number of days people called it in his name.
 - (1) Birla Mandir (2) Ladhkhan Temple
 - (3) Tulsidas Mandir (4) Gurunanak Dwara
- 46. Observe the following pictures of social reformers and identify the order of the statements correctly related to them:
 - A. Dedicated her life for the betterment of women of India and established 'Mukti Mission'.
 - B. She opposed the exploitation of women in her book 'Stri Purusha Tulana'.
 - C. While treating the patients of plague along with her son, she died of it.
 - D. Called for universal brotherhood without distinction of race, creed, sex, caste and colour.



47. The important events those took place during the American war of Independence is depicted in the following flow diagram. Identify the correct chronological sequence:



- A. Cornwallis surrender
- B. The sugar and Molasses Act
- C. Second Congress of Philadelphia
- D. Boston Tea Party

	i	ii	iii	iv
(1)	В	С	D	А
(2)	В	D	С	Α
(3)	А	В	D	С
(4)	С	В	А	D

- Choose the correct sequence to indicate the given statement of the results of the Battle of Plassey as True (T) or False (F):
 - A. The battle of Plassey brought out the immorality, lack of unit among the Indians and the greed of Indian business men.
 - B. After the Battle of Plassey, Siraj-ud-daulah became the Nawab of Bengal.
 - C. The company gained exclusive rights to do business in Bengal after the Battle of Plassey.
 - D. Mir Jaffar had to pay huge amount as a war relief.

(1)	ТТТТ	(2)	TFTF
(3)	TFFT	(4)	TFTT

- 49. Read the given statements and identify the correct Act which is related to all of them:
 - A. This act formulated Bi-cameral legislative body at the centre.
 - B. As per this Act "Diarchy" was allowed at regional government.
 - C. As per this Act a High Commissioner was appointed for India.
 - D. As per this Act Provincial budget was separated from Central budget.
 - (1) Indian Government Act of 1935
 - (2) Indian Council Act of 1909
 - (3) Indian Council Act of 1892
 - (4) Indian Council Act of 1919

50. In the List- A Authors and List- B their work given. Choose the correct answer by matching them:

List-A		List-	3
A. Charles Dickens B. Emile Zola C. Thomas Hardy D. Charlote Brontte		i. Mayor of Casterbridge ii. Germinal iii. Jane Eyre iv. Hard times	
(1) A-ii, B-iii	, C-i, D-i	v (2)	A-iv, B-iii, C-i, D-i
(3) A-iv, B-ii	, C-ii, D-	iii (4)	A-iii, B-ii, C-iv, D-i

- 51. The group of wild life sanctuaries and the states in which they are located is given below. Identify the correctly matched group:
 - (1) Manas Meghalaya

Bhadra - Karnataka Annamalai – Tamilnadu Mudumalai – Kerala

- Biligiriranga Hills Karnataka
 Ranthambore Gujarat
 Nagarjuna Sagar Andhra Pradesh
 Jaldapara Kerala
- (3) Nagarjuna Sagar Telangana
 Bharathpura Rajasthan
 Manas Assam
 Dandeli Karnataka
- (4) Mudumalai Tamilnadu
 Periyar Kerala
 Bharathpur Gujarat
 Jaladapara Assam
- 52. Identify the correct statements related to 'cotton crop' from the options given below:
 - i. It is grown as a Rabi Crop in India.
 - ii. It is tropical and sub-tropical zone crop.
 - iii. It requires 10° to 15°C temperature.
 - iv. It requires 50 to 100 cm annual rainfall.
 - (1) (i) and (ii) only correct
 - (2) (iii) and (iv) only correct
 - (3) (i) and (iii) only correct
 - (4) (ii) and (iv) only correct

53. Read the following statements and choose the correct answer:

Assertion (A): Laterite soil is not that much useful for agriculture.

Reason (R): Laterite soil Undergoes more leaching process.

- (1) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- (2) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- (3) (A) is correct, (R) is incorrect
- (4) (A) is incorrect, (R) is correct
- 54. Refer to the given circles below, select the correct option regarding 'X' and 'Y':



- (1) 'X' can be 'Narmada' and 'Y' can be 'Godavari'
- (2) 'X' can be 'Kaveri' and 'Y' can be 'Netravati'
- (3) 'X' can be 'Mahanadi' and 'Y' can be 'Krishna'
- (4) 'X' can be 'Sharavathi' and 'Y' can be 'Tapi'
- 55. Match the column 'A' with the column 'B' and choose the correct answer:

List-A	List-B
A. Veer Savarkar International Airport	I. Nagpur
B. Lal Bahadur Shashtri International Airport	ii. Bhuvaneshwar
C. Babasaheb Ambedkar International	iii. Port Blair
D. Sardar Vallabhbhai International	iv. Ahmedabad
	v. Varanasi
(1) A-ii, B-v, C-iv, D-i	

- (2) A-iii, B-v, C-i, D-iv
- (3) A-iv, B-iii, C-i, D-ii
- (4) A-iii, B-i, C-iv, D-ii

56. Match the marked multipurpose river valley projects on the map of India (i, ii, iii, iv) with their respective names:



- i. Bhakra Nangal
- ii. Nagarjuna Sagar
- iii. Kosi
- iv. Hirakud
- (1) a-ii, b-iii, c-i, d-iv (2) a-iv, b-i, c-iii, d-ii
- (3) a-i, b-iv, c-ii, d-iii (4) a-iii, b-i, c-iv, d-ii
- 57. A tourist was travelling across Indian states. He first visited Pykara hydroelectric power station, secondly Jawaharlal Nehru sea Port, thirdly Bokaro steel plant station and lastly Govind Ballabh Panth reservoir. Identify the proper sequence of the states the tourist travelled:
 - (1) Maharashtra, Andhra Pradesh, Chhattisgarh Gujarat
 - (2) Andhra Pradesh, Maharashtra, Bihar Karnataka
 - (3) Kerala, Tamil Nadu, Odisha, Gujarat
 - (4) Tamil Nadu, Maharashtra, Jharkhand, Uttar Pradesh
- 58. While teaching a topic on 'Minerals and Energy Resources' the geography teacher had made the following statement about a particular resource in the class:

"This resource is formed plant residue and transformed due to high temperature and pressure. It is composed largely of carbon"

The teacher has stated about the resource mentioned below.

- (1) Manganese (2) Iron
- (3) Coal (4) Bauxite

59. Read the following statements and choose the correct answer:

Assertion (A): The population is high in the Northern plain of India

Reason (R): The fertility of soil is one of the factors affecting on the distribution of population.

- (1) (A) is correct, (R) is incorrect
- (2) (A) is incorrect, (R) is correct
- (3) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- (4) Both (A) and (R) are correct and (R) is not the correct explanation of (A)
- 60. The type of vegetation shown in the picture is found in this type of forests in India:



- (1) Mangrove Forest
- (2) Mountain Forest
- (3) Monsoon Forest
- (4) Evergreen Forest
- 61. The list 'A' contains fundamental rights and the list 'B' their article numbers. Choose the correct option that matches them:

List-A	List-B
A. Right to Freedom B. Right to freedom of religion C. Right against exploitation D. Cultural and educational rights	i. 23 and 24 articles ii. 14 to 18 articles iii. 29 and 30 articles iv. 19 to 22 articles v. 25 to 28 articles
(1) A-ii, B-iii, C-i, D-iv	
(2) A-v, B-i, C-ii, D-iii	
(3) A-iv, B-v, C-i, D-iii	

(4) A-i, B-iv, C-iii, D-ii

- 62. The process of creation of an act in the state's legislature is jumbled up. Find the correct option that shows proper order of process of creation of an act:
 - A. A discussion takes place on the bill and sent to respective house committee.
 - B. The house approves the bill with 2/3 majority.
 - C. The person who tables the bill reads out the text loudly.
 - D. The bill is sent to the Governor's office for approval.
 - E. The house committee deliberates on the bill and submits report to the legislative house.
 - (1) A C D B E (2) C A E B D
 - $(3) EACBD \qquad (4) CEBDA$
- 63. He discussed the origin, development and functions of state in his book 'Politics'. Identify the person:
 - (1) Plato (2) Aristotle
 - (3) Socrates (4) Herodotus
- 64. One of the following is not a function of Karnataka public service commission:
 - A. Appointing the gazetted and non-gazetted officers
 - B. Conducting interviews for direct recruitment of candidates.
 - C. Conducting departmental exams for state government employees.
 - D. Train the teachers on modern skill of teaching.
 - (1) A (2) B
 - (3) C (4) D
- 65. Observe the four statements given. Choose the option which justifies India's relationship with it:
 - A. It signed for peace, friendship and co-operation with India in 1971
 - B. It helped in the establishment of Bhilai and Bokaro steel industries.
 - C. It co-operated during Tashkent agreement in 1966.
 - D. It co-operated in U.N.O. during the liberation of Goa in 1962
 - (1) America (2) England
 - (3) Russia (4) France

- 66. A set of four statements is given. Identify the one which is not Emile Durkhiem's statement:
 - (1) Emile durkheim considered society as an important unit of sociological study
 - (2) He opines that man's social behaviour has to understand not by personal view but by social background.
 - (3) He believed that the capitalist society would be transformed by its victims i.e. working class.
 - (4) He opines that our duties and practices are defined through society's law and customs
- 67. 'Jharhkand Mukti Morcha' Organization came in to being as a result of:
 - (1) Long standing demands of people for the separate state.
 - (2) Movement against atrocities of police force against innocents
 - (3) Actions of companies that rendered thousands of tribal displacements due to mining
 - (4) Movement for reservation of Schedule caste and Schedule tribe
- 68. Characteristics of culture is given below. Find the one which is not a characteristic of culture:
 - (1) Culture is learnt
 - (2) Culture is transmissive
 - (3) Culture is a static Phenomena
 - (4) Culture is continuous and cumulative
- 69. The list 'A' contains Environmental Movement and the list 'B' contains related information to the movement. Choose the correctly matched option: List-A List-B

A. Silent Valley Movement	I. Began at Tehri- Gharwal District	
B. Coastal Karnataka Movement	ii. Started in 1983 by the villagers of Salyani iii. Started at the	
C. Chipko Movement		
D. Appiko Movement	valley of Phalghat iv. Started in Mangalore against refineries v. It was started against honour killing	
(1) A-iii, B-iv, C-i, D-ii (2) A	-ii, B-i, C-iii, D-v	
(3) A-v, B-iii, C-ii, D-I (4) A	-iv, B-v, C-ii, D-iii	

- Assertion (A): Section 17 of the constitution prohibits the practice of untouchability.
 Reason (R): The Act of 1989 has given some responsibilities for the government in eradication of untouchability.
 - (1) A is true and R is false
 - (2) A is false and R is true
 - (3) Both A and R are true and R is related to A
 - (4) Both A and R are true and R is not related to A
- 71. A Set of four sentences related to Globalisation is given. Choose the correct option:
 - A. Globalisation creates free trade zone by removing the import and export duties.
 - B. Globalisation creates international agreements.
 - C. Globalisation fight out child labour and slavery.
 - D. Globalisation promotes specialization in production.
 - (1) Only A, B and D are correct
 - (2) Only A, B and C are correct
 - (3) Only A is correct
 - (4) Only C is correct
- 72. The purpose of Pradhan Mantri Mudra Yojana is:
 - A. To ensure access to financial services in nationalised banks.
 - B. To help every rural citizen to open bank account.
 - C. To provide loan for small businessmen / startups from 50,000 to 10 Lakh.
 - D. To provide life insurance to all citizens between the age of 18 to 50 years.
 - (1) A (2) B
 - (3) C (4) D
- 73. Gender inequality index (GII) is calculated at the international level by one of the following agencies:
 - A. U.N.D.P
 - B. UNICEF
 - C. UN's General Assembly
 - D. UNESCO
 - (1) A (2) B
 - (3) C (4) D

- 74. The main aim of 73rd amendment of the constitution in 1993 with respect to Panchayatraj system is:
 - A. Centralization of power and responsibilities of village administration.
 - B. Abolition of special powers of village administration.
 - C. Decentralize and confer constitutional status to the panchayat institutions.
 - D. To bring village administration under the direct control of state.
 - (1) A (2) B
 - (3) C (4) D
- 75. **Statement (A):** Foreign direct investment is an investment of foreign assets into domestic structures, equipment and organisations.

Reason (R): FDI does not include foreign investment into the stock markets.

- (1) 'A' is wrong 'R' is correct
- (2) 'A' and 'R' both are wrong
- (3) Only 'A' is correct
- (4) 'A' is correct, 'R' is the correct explanation of 'A'
- 76. The two Nationalised banks logos are given. Identify the correct option that matches.



- A. Syndicate Bank and Canara Bank
- B. Canara Bank and Punjab National Bank
- C. Canara Bank and State Bank of India
- D. State Bank of India and H.D.F.C. Bank
- (1) A
- (2) B
- (3) C
- (4) D

77. **Assertion (A):** The private sector consists of business owned by individuals or a group of individuals.

Reason (R): The private sector may either be partly or wholly owned by central or state government as per 1991 industrial policy.

- (1) 'A' is right, 'R' is the correct explanation of 'A'
- (2) 'A' is right, 'R' is not the correct explanation of 'A'
- (3) Both 'A' and 'R' are wrong
- (4) Only 'A' is wrong
- 78. One of the privileges of a private limited company is given. Choose the option which is related to it:
 - A. A private company can be formed by only two members.
 - B. Need to issue a prospectus as public is invited to subscribe to shares
 - C. It is mandatory to keep an index of members in private company.
 - D. Allotment of shares cannot be done without receiving the minimum subscription.
 - (1) A (2) B
 - (3) C (4) D
- 79. The benefits of e-banking are listed. Choose the wrong statement:
 - A. Customer of e-bank can make some permitted transaction from office or house.
 - B. e-banking inculcates a sense of financial discipline by recording each and every transaction.
 - C. Unlimited access to the bank by the customers.
 - D. It allows customers to transact only with the government.
 - (1) A
 - (2) B
 - (3) C
 - (4) D

80. Observe the picture and find the suitable statement related to the person:



- A. She is called the 'Queen of Indian television sector.
- B. The founder chairman of JET Airways
- C. The founder of Apollo Hospitals.
- D. Chairman and Managing Director of Biocon Ltd.
- (1) A and B only (2) B only
- (3) C and D only (4) D only
- 81. If the zeros of polynomial $f(x) = x^3 3x^2 + m$ are in Arithmetic Progression, then the value of 'm' is

		-	
(1)	3		(2) 2
(2)	2		(1) 0

- (3) -3 (4) -2
- 82. The Least Common Multiple (LCM) and the Highest Common Factor (HCF) of two numbers are 168 and 12 respectively. If the sum of those two numbers is 108, find the difference between them:

(1)	36	(2)	40
(a)	~~		~ ·

- (3) 60 (4) 64
- 83. MNO is an isosceles triangle where $\overline{MN} = \overline{MO}$. A circle through the vertex 'N' touches side \overline{MO} at its middle point 'P' and intersects side \overline{MN} at point 'A'. If $\overline{AM} = 3$ cm, then the length of \overline{MO} is:



84. In $\triangle PQR$, $|PQR| = 90^{\circ}$ and $\overline{QS} \perp \overline{PR}$. The true relation among the following.



- A. $\overline{\mathsf{QS}}^2 = \overline{\mathsf{PS}} \times \overline{\mathsf{SR}}$
- B. $\overline{PQ}^2 = \overline{RS} \times \overline{PR}$
- C. $\overline{QR}^2 = \overline{PS} \times \overline{SR}$
- D. $\overline{PQ} \times \overline{QR} = \overline{QS} \times \overline{PS}$
- (1) Only A (2) Only A and B
- (3) Only A and C (4) Only A and D
- 85. If the area of the triangle formed by joining the points (0, a), (–a, 0) and (a, 0) is 16a cm², then the value of 'a' is:
 - (1) 16 cm (2) 8 cm
 - (3) 4 cm (4) 2 cm
- 86. The interior angles of a polygon are in an Arithmetic Progression and the common difference is 10. If the biggest exterior angle is 85⁰, then the number of sides of the polygon will be
 - (3) 7 (4) 8
- 87. If A (0, 7), B (-6,0) and C(0,-4) are the vertices of $\triangle ABC$, then the distance from centroid of $\triangle ABC$ to vertex 'A' is
 - (1) $\sqrt{40}$ (2) $\sqrt{32}$
 - (3) $\sqrt{68}$ (4) $\sqrt{60}$
- 88. Following two statements speak about Arithmetic Progression:

Statement (A): In an Arithmetic Progression series:

 $20 + 19\frac{1}{3} + 18\frac{2}{3} + \dots \dots 25$ terms is 300

Statement (B): In an Arithmetic progression series:

$$20+19\frac{1}{3}+18\frac{2}{3}+\dots 36$$
 terms is 300

Pick the correct option from below:

- (1) Only statement A is true
- (2) Only statement B is true
- (3) Both the statements are true
- (4) Both the statements are false

Answer (3)

 The product of mean and median of first five prime numbers is

(1)	54.6	(2)	28
-----	------	-----	----

- (3) 27 (4) 10.8
- 90. If the difference between sum of the roots and product of the roots of a quadratic equation $(ax)^2 + bx + c = 0$ (where $a \neq 0$) is 'zero', then:
 - (1) -b+c=0 (2) b+c=0
 - (3) $a^2 b + c = 0$ (4) $a^2 + b + c = 0$
- 91. If $\sin 52^\circ \cdot \csc(90^\circ 2A) = 1$, then the measure of angle 'A' is
 - (1) 19° (2) 26° (3) 38° (4) 52°
- 92. The value of 'x' and 'y' for the linear equations: $a_1x + b_1y + c_1 = 0$ and
 - $a_2 x + b_2 y + c_2 = 0$ are
 - (1) $x = \frac{b_1c_1 b_1c_2}{a_1b_2 a_2b_1}$ and $y = \frac{c_1a_2 c_2a_1}{a_1b_2 a_1b_1}$ (2) $x = \frac{b_2c_1 - b_2c_1}{a_1b_2 - a_2b_1}$ and $y = \frac{c_1a_2 - c_2a_1}{a_1b_2 - a_2b_1}$ (3) $x = \frac{b_2c_1 - b_1c_2}{a_2b_1 - a_1b_2}$ and $y = \frac{c_1a_1 - c_2a_1}{a_2b_1 - a_1b_2}$
 - (4) $x = \frac{b_1c_2 b_2c_1}{a_1b_2 a_2b_1}$ and $y = \frac{c_1a_2 c_2a_1}{a_1b_2 a_2b_1}$
- 93. If $(\sin\theta + \tan\theta) = a$ and $(\tan\theta \sin\theta) = b$, then $a^2 - b^2 =$
 - (1) ab (2) 2√ab
 - (3) 4ab (4) $4\sqrt{ab}$

94. 'O' is the centre of the circle. The area of the shaded region in the given figure is 126 cm², $\overline{PQ} = \overline{PR}$, then the diameter QR is:



- 95. The radius of a solid right circular cone increases by 20% and its height decreases by 20%. The percentage change in its volume is
 - (1)
 15.2%
 (2)
 20%

 (2)
 25
 20%
 (1)
 220%
 - (3) 25.2% (4) 30%
- 96. From the top of a building of height 'h' meter, the angle of elevation of the top of the tower is ' α ' and angle of depression of the foot of the tower is ' β '. The height of the tower is

(1)
$$\frac{h + (\tan \alpha + \tan \beta)}{\tan \beta}$$

(2)
$$\frac{h(\tan \alpha + \tan \beta)}{\tan \beta}$$

(3)
$$\frac{h \tan(\alpha + \beta)}{\tan \beta}$$

(4)
$$\frac{h + \tan(\alpha + \beta)}{\tan \beta}$$

- 97. The perimeter of a square is found to be equal to the circumference of a circle. The ratio of the are of that square to the area of that circle would be:
 - (1) 14:11
 - (2) 22:7
 - (3) 11:14
 - (4) 7:22

- 98. A metal cube is completely submerged in a cylindrical vessel containing water. The diameter of the vessel is 30 cm, the level of water is raised
 - by $1\frac{41}{49}$ cm. The length of the edge of the cube is
 - (1) 40 cm
 - (2) 30 cm
 - (3) 20 cm
 - (4) 10 cm
- 99. In trapezium PQRS, PQ||RS and its diagonal intersect at 'O'. If PQ = 6 cm and RS = 3 cm, then the ratio of the areas of \triangle POQ and \triangle ROS is
 - (1) 4:1
 - (2) 1:2
 - (3) 2:1
 - (4) 1:4

100. The table below shows the value probability when three identical coins are tossed. They are not matched correctly

	Column-A	C	Column-B
i)	Getting at most two heads	a)	$\frac{4}{8}$
ii)	Getting at least two heads	b)	5 8
iii)	Getting exactly one head	c)	8 8
iv)	Getting neither all heads nor all Tails	d)	3 8
		e)	$\frac{7}{8}$

Match the columns correctly:

(1) i-e, ii-a, iii-b, iv-d (2) i-d, ii-b, iii-a, iv-e

(3) i-d, ii-b, iii-c, iv-e (4) i-e, ii-a, iii-d, iv-c