

### Section 1 - Paper1-English Language

1) Select the correct form of verb from the given options.  
She \_\_\_\_\_ the piano very well.

- A) play
  - B) plays
  - C) will play
  - D) playing
- 

2) Select the correct form of plural from the given options.  
Tigers have sharp \_\_\_\_\_ that can kill a human.

- A) teeth
  - B) teeths'
  - C) tooth
  - D) teeths
- 

3) Choose the most appropriate similar meaning word.  
CORPULENT

- A) Obese
  - B) Lean
  - C) Gaunt
  - D) Emaciated
- 

Read the passage and answer the questions that follow:

#### Insomnia

Insomnia, also known as sleeplessness, is a sleep disorder where people have trouble sleeping. They may have difficulty falling asleep, or staying asleep as long as desired. Insomnia is typically followed by daytime sleepiness, low energy, irritability, and a depressed mood. It may result in an increased risk of motor vehicle collisions, as well as problems focusing and learning. Insomnia can be short term, lasting for days or weeks, or long term, lasting more than a month. Insomnia can occur independently or as a result of another problem. Conditions that can result in insomnia include psychological stress, chronic pain, heart failure, hyperthyroidism, heartburn, restless leg syndrome, menopause, certain medications, and drugs such as caffeine, nicotine, and alcohol. Other risk factors include working night shifts and sleep apnea.

Diagnosis is based on sleep habits and an examination to look for underlying causes. A sleep study may be done to look for underlying sleep disorders. Screening may be done with two questions: "Do you experience difficulty sleeping?" and "Do you have difficulty falling or staying asleep?" Sleep hygiene and lifestyle changes are typically the first treatment for insomnia. Sleep hygiene includes a consistent bedtime, exposure to sunlight, a quiet and dark room, and regular exercise. Cognitive behavioral therapy may be added to this. While sleeping pills may help, they are associated with injuries, dementia, and addiction. These medications are not recommended for more than four or five weeks. The effectiveness and safety of alternative medicine is unclear. Between 10% and 30% of adults have insomnia at any given point in time and up to half of people have insomnia in a given year. About 6% of people have insomnia that is not due to another problem and lasts for more than a month. People over the age of 65 are affected more often than younger people. Females are more often affected than males. Descriptions of insomnia occur at least as far back as ancient Greece.

4) Consuming sleeping pills for insomnia

- A) is only recommended for four to five weeks
  - B) can be effective with regular exercise
  - C) is useful in Cognitive behavioral therapy
  - D) can stabilize sleeping habits for long term
- 

5) Insomnia is a sleep disorder where people have problem sleeping for the desired amount of time or have

- A) psychological stress
  - B) bad sleep hygiene
  - C) difficulty falling asleep
  - D) daytime sleepiness
- 

6) According to the passage, Insomnia can be the result of

- A) hyperthyroidism
- B) daytime sleepiness
- C) irritability
- D) a depressed mood

7) As per the passage, Insomnia can be followed by

- A) Low energy levels
  - B) Chronic pain
  - C) Heartburn
  - D) Psychological stress
- 

8) One of the good sleep hygienes indicated in the passage includes

- A) taking any kind of pills
  - B) properly laundered bedsheets and pillow covers
  - C) a quiet and dark room
  - D) taking a bath before bed
- 

9) Select the correct option.

Bill enjoys reading \_\_\_\_\_ mystery novels.

- A) the
  - B) a
  - C) no article
  - D) an
- 

10) Choose the most appropriate similar meaning word.

VENT

- A) Opening
- B) End
- C) Stodge
- D) Middle

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Section 2 - Paper1-Education and General Awareness

11) Under whose Chairmanship was the University Education Commission established in 1948-49?

- A) Dr. S. Ramanathan
  - B) Dr. L. S. Mudaliar
  - C) Dr. S. Radhakrishnan
  - D) Dr. D. S. Kothari
- 

12) The highest advisory body to advise the Central and State Governments in the field of education is

- A) NCHE
  - B) NKC
  - C) CBSE
  - D) CAGE
- 

13) Read the following statements and choose the CORRECT option.

(i) A Money Bill can be introduced in Lok Sabha only.  
(ii) A Money Bill can be referred to a Joint Committee of the Houses.

- A) (i) is FALSE and (ii) is TRUE
  - B) (i) is FALSE (ii) is FALSE
  - C) (i) is TRUE and (ii) is TRUE
  - D) (i) is TRUE and (ii) is FALSE
- 

14) The function of CIET is to encourage the use of

- A) Educational Techniques in the spread of vocational courses
  - B) Educational Technology in the spread of education
  - C) Educational Techniques in the spread of education
  - D) Educational Technology in the spread of vocational courses
- 

15) 'Titan' is the largest moon of which of the following planets?

- A) Venus
- B) Uranus
- C) Jupiter
- D) Saturn

Section 3 - PaperI-Reasoning

16) In a certain code language, if ABACUS is coded as SUCABA, then CLOCK will be coded as

- A) KOCLC
- B) KCOLC
- C) CLKOC
- D) LOCKC

17) Instruction: In the following questions mark:

1, if the question can be answered with the help of statement I alone.

2, if the question can be answered with the help of statement II alone.

3, if the question can be answered with the help of both I and II.

4, if the question can't be answered at all.

Which day is the twenty first day of a given month ?

Statement I : The last day of the month is a Thursday.

Statement II : The fourth Friday of the month is Twenty-fifth.

- A) 1
- B) 3
- C) 4
- D) 2

18) Instruction: Below mentioned are statements followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance from the commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

Statements:

Some hands are legs.

Some legs are eyes.

Some eyes are ears.

Conclusions:

I) Some hands are eyes.

II) Some legs are ears.

III) Some ears are eyes.

IV) Some ears are legs.

- A) Only II follows
- B) Only IV follows
- C) Only I follows
- D) Only III follows

19) Rahul's present age is thrice that of Nihal's age. Nihal's age 8 years ago was 18 years. What will be Rahul's age after 3 years?

- A) 81 years
- B) 78 years
- C) 26 years
- D) 75 years

20) Instruction: Below mentioned are statements followed by some conclusions. You have to take the given statements to be true even if they seem to be at variance from the commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

Statements:

Some roses are red.

Some flowers are roses.

Conclusions:

I) Some roses are green.

II) All flowers are red.

- A) Both I & II follow
- B) None of the conclusions follow
- C) Only II follows
- D) Only I follows

Section 4 - Paper-I-Teaching Aptitude

21) Which of the following options is INCORRECT with respect to practices followed by a teacher in case of misbehaviour observed in a student?

- A) Punish the student and isolate him from the class for some days
  - B) Ask the student about the reason for the misbehavior and confront him in the class
  - C) Move away from the student, take time to calm down and think of the best way to respond
  - D) Talk to the student calmly about the observed behaviour and explain why it is unacceptable
- 

22) This is a method of working through a situation, a scenario, or a problem by assuming roles and practising what to say and do in a safe setting. Identify the method.

- A) Problem solving method
  - B) Situational method
  - C) Practical method
  - D) Role play method
- 

23) Which of the following domains of educational activities involves knowledge and development of intellectual skills as per Bloom's Taxonomy (1956)?

- A) Affective
  - B) Non-cognitive
  - C) Cognitive
  - D) Psychomotor
- 

24) Who has said this famous statement about Education - 'Education is the manifestation of the divine perfection, already existing in man'?

- A) Rabindra Nath Tagore
- B) Swami Vivekananda
- C) Sri Aurobindo
- D) Mahatma Gandhi

25) According to Bender & Shores (2007), Problem solving RTI Model is a sequential pattern of steps divided into three stages. Which of the following options is NOT one of those stages?

- A) Problem Solving Team Interventions
  - B) Out of the School techniques
  - C) Special Education Referral and Initiation of Due Process Procedures
  - D) Classroom Interventions
- 

26) Which of the following statements is FALSE with reference to the features of Sarva Shiksha Abhiyan?

- A) To provide useful and relevant elementary education for all children in the age group of 6 to 14
  - B) To bridge social, regional and gender gaps with active participation of community in the management of schools
  - C) To increase the female literacy rate to 75% of total female population of the country
  - D) To universalize and improve quality of education through decentralized and context-specific planning
- 

27) To promote adult education in India, a series of programmes have been introduced since the First Five Year Plan, the most prominent being the NLM that was launched in the year 1988. What is the full form of NLM?

- A) National Literacy Motivation
  - B) National Learning Motivation
  - C) National Learning Mission
  - D) National Literacy Mission
- 

28) Which of the following terms refers to the way the curriculum is taught and all the methodological aspects of learning and teaching?

- A) Pedagogy
- B) Sociology
- C) Anthropology
- D) Heutagogy

29) Which of the following options is INCORRECT with reference to the teachers' conduct while managing the classroom?

- A) Keeping control on emotions
  - B) Maintaining eye contact
  - C) Respecting students
  - D) Confronting the students
- 

30) Which of the following systems of education in India is about ensuring basic elementary education to students from Kindergarten to the 12th grade?

- A) The K-12 system
- B) The Senior Secondary 10+2+3 system
- C) The Intermediate education
- D) The +Two system of education C5

Section 5 - PaperII-Physical Science

31) Which among the following laws states that, "Equal volumes of all gases under similar conditions of temperature and pressure contain equal number of molecules"?

- A) Avogadro law
  - B) Gay Lussac's law
  - C) Boyle's law
  - D) Charles' law
- 

32) The dimensional formula for Capacitance is

- A)  $[L^{-2} AT]$
  - B)  $[M^1 L^2 T^{-3} A^{-1}]$
  - C)  $[M^{-1} L^{-2} T^{-4} A^2]$
  - D) 0
- 

33) Arrange the following compounds in increasing order of their electronegativity:  $H_2O$ , HI,  $CH_4$  and  $NH_3$

- A)  $CH_4 < NH_3 < H_2O < HI$
  - B)  $HI < H_2O < CH_4 < NH_3$
  - C)  $NH_3 < H_2O < CH_4 < HI$
  - D)  $H_2O < HI < CH_4 < NH_3$
- 

34) Keeping the total mechanical energy constant in an isolated, conservative system, the potential energy of a system can increase if a work is done on the system by

- A) nonconservative internal forces
  - B) conservative internal forces
  - C) combination of conservative external forces and gravity force
  - D) external forces
- 

35) A circular coil of radius 10 cm has 1000 turns and carries 3.5 A current. Its magnetic moment will be

- A) 22 A/m<sup>2</sup>
  - B)  $22 \times 10^{-2}$  A/m
  - C) 220 Am<sup>2</sup>
  - D) 110 Am<sup>2</sup>
- 

36) Arrange the following elements in decreasing order of their reactivity: Na, Zn, Sn, Cu, Au

- A)  $Na > Sn > Zn > Cu > Au$
  - B)  $Au > Sn > Cu > Zn > Na$
  - C)  $Au > Cu > Sn > Zn > Na$
  - D)  $Na > Zn > Sn > Cu > Au$
- 

37) The work done in moving a point positive charge, q, by a distance d on an equipotential surface is

- A) 0
  - B) qd
  - C) 2qd
  - D) (-)qd
- 

38) The number of moles of a solute present in 1 kg of solvent is called its

- A) weight percentage
  - B) molality
  - C) mole fraction
  - D) molarity
- 

39) A 30 kg boy is climbing on a massless rope. The rope can sustain a maximum tension of 450 N. Under which of the following conditions will the rope break? (Given, acceleration due to gravity,  $g = 10m/s^2$ )

- A) The boy is climbing down with a uniform velocity
  - B) The boy is climbing up with a uniform velocity
  - C) The boy is climbing down with an acceleration of 6 m/s<sup>2</sup>
  - D) The boy is climbing up with an acceleration of 6 m/s<sup>2</sup>
- 

40) The relation  $F = ma$ , where F, m and a stands for applied force, mass of the object and acceleration of the object, respectively, is an outcome of

- A) Newton's first law of motion
- B) Galileo's law of inertia
- C) Newton's second law of motion
- D) Newton's third law of motion

41) The eight notes of a music scale are Sa, Re, Ga, Ma, Pa, Dha, Ni, Sa. What is the frequency relation between the first 'Sa' note ( $f_1$ ) and the eighth 'Sa' note ( $f_8$ )?

- A)  $f_1 = 2f_8$
  - B)  $f_1 = f_8$
  - C)  $f_1 = f_8/4$
  - D)  $f_1 = f_8/2$
- 

42) The Self Inductance of coil is best defined with which of the following expressions?

- A)  $L = NI^2/\Phi$
  - B)  $L = NI/\Phi$
  - C)  $L = N\Phi/I$
  - D)  $L = N^2\Phi/I$
- 

43) Compton effect is well observed in

- A) radio waves
  - B) microwaves
  - C) visible light
  - D) X-rays
- 

44) The Plum Pudding model of an atom was proposed by

- A) Rosalind Franklin
  - B) Marie Curie
  - C) R. A. Millikan
  - D) J. J. Thomson
- 

45) If a rocket of mass 100 kg with 900 kg of fuel is fired from rest such that the exhaust gases are ejected at a uniform speed of 45 km/s, then the maximum speed acquired by the rocket will

- A) be more than 100 km/s
- B) lie between 50 to 90 km/s
- C) lie between 30 to 45 km/s
- D) be less than 20 km/s

46) The oxidation number of Sulphur in the compound,  $H_2S_2O_7$  is

- A) +12
  - B) +6
  - C) +5
  - D) -4
- 

47) According to Dulong and Petit, the specific heat per mole of a chemically pure crystalline solid is approximately equal to

- A)  $25.1 \text{ cal mol}^{-1}\text{K}^{-1}$
  - B)  $6 \text{ J mol}^{-1}\text{K}^{-1}$
  - C)  $6 \text{ cal mol}^{-1} \text{K}^{-1}$
  - D)  $25.1 \text{ J mol}^{-1} \text{K}^{-1}$
- 

48) What is the SI unit of mechanical equivalent of heat?

- A) Joules/Calorie
  - B) Calorie
  - C) Joules
  - D) Calories/Joules
- 

49) The work function of Li is 2.42 eV. Find the maximum wavelength of electromagnetic radiation that can cause photoemission from it.

- A) 313 nm
  - B) 513 nm
  - C) 413 nm
  - D) 213 nm
- 

50) A 20 kW petrol engine consumes 6 kg of petrol/ hr. Find its efficiency. (Given, the calorific value of petrol =  $12 \times 10^3 \text{ cal g}^{-1}$ )

- A) 23.80%
- B) 100%
- C) 76.20%
- D) 36.20%

Section 6 - PaperII-Biological Science

51) Which of the following part of the plant cell provides definite shape and rigidity to the cell?

- A) Nucleus
  - B) Endoplasmic reticulum
  - C) Cytoplasm
  - D) Cell wall
- 

52) The common name of the phylum Pterophyta is

- A) Mosses
  - B) Ferns
  - C) Cycads
  - D) Quillworts
- 

53) Pinocytosis is the process in which intake of droplets of extracellular fluid along with submicroscopic particles occurs. It is also termed as

- A) cell death
  - B) cell eating
  - C) cell drinking
  - D) cell vomiting
- 

54) Coal is a solid fossil fuel formed over million of years by

- A) remains of marine microorganisms
  - B) decay of land vegetation
  - C) weathering of rocks
  - D) eutrophication
- 

55) Which of the following cells in earthworm play a role similar to liver in vertebrates?

- A) Flame cells
- B) Choanocytes
- C) Cnidocytes
- D) Chloragogen cells

56) Which of the following terms is NOT a part of the Animal cell?

- A) Cell membrane
  - B) Cytoplasm
  - C) Nucleus
  - D) Chloroplast
- 

57) Under binomial system of nomenclature, a plant/animal name is written in two words which designate

- A) Genus and Class
  - B) Family and Kingdom
  - C) Order and Kingdom
  - D) Genus and Species
- 

58) Plants that have separate male and female flowers on the same plant but in different flowers are termed as

- A) Hermaphrodite
  - B) Monoecious
  - C) Dioecious
  - D) Gynodioecious
- 

59) Which of the following natural resource is a solid fossil fuel?

- A) Petroleum
  - B) Crude oil
  - C) Natural gas
  - D) Coal
- 

60) Which of the following hypothesis proposes that organisms interact with their inorganic surroundings on earth to form a synergistic self-regulating complex system that helps to maintain and perpetuate the conditions for life on the planet?

- A) Natural selection hypothesis
- B) Red queen hypothesis
- C) Gaia hypothesis
- D) Evolution hypothesis

61) An organism that gets energy from dead or decaying organisms is referred as

- A) producer
  - B) decomposer
  - C) primary consumer
  - D) secondary consumer
- 

62) Which of the following phyla is commonly known as sea walnuts?

- A) Ctenophora
  - B) Platyhelminthes
  - C) Porifera
  - D) Aschelminthes
- 

63) In plants, which of the following tissues is an example of vascular tissue system?

- A) Phloem
  - B) Epidermis
  - C) Parenchyma
  - D) Sclerenchyma
- 

64) Which of the following options help leaves to capture the energy of the sunlight?

- A) Water
  - B) Carbohydrate
  - C) Chlorophyll
  - D) Carbon dioxide
- 

65) Name the non-conventional sources of energy from the following.

- A) Natural gas
  - B) Wind
  - C) Petroleum
  - D) Coal
- 

66) Which of the following cell organelles are involved in the formation of lysosomes?

- A) Peroxisomes
- B) Golgi apparatus
- C) Nucleus
- D) Ribosomes

67) Which of the following greenhouse gases is used in aerosol cans and air conditioners?

- A) Nitrous oxide
  - B) Chlorofluorocarbons
  - C) Carbon dioxide
  - D) Methane
- 

68) Read the following statements and choose the CORRECT option:

(i) Gross primary productivity of an ecosystem is the rate at which energy is captured during photosynthesis  
(ii) Energy that remains in plant tissues after cellular respiration has occurred is called as net primary productivity

- A) (i) is TRUE and (ii) is TRUE
  - B) (i) is FALSE and (ii) is FALSE
  - C) (i) is FALSE and (ii) is TRUE
  - D) (i) is TRUE and (ii) is FALSE
- 

69) In a mature embryo sac of angiosperms, the egg apparatus consists of

- A) three synergids and one egg cell
  - B) three antipodals and one egg cell
  - C) one synergids and one egg cell
  - D) two synergids and one egg cell
- 

70) Which of the following is an example of man-made ecosystem?

- A) River
- B) Aquarium
- C) Forest
- D) Desert

Section 7 - PaperII-Mathematics

71) Which of the following is the value of the discriminant of the quadratic equation  $2x^2 + 3x + 5 = 0$ ?

- A) 7
  - B)  $\sqrt{-31}$
  - C) -31
  - D) 49
- 

72) What is the value of  $\log_2 (1/8)$ ?

- A) 1
  - B) 0
  - C) 3
  - D) -3
- 

73) If  $x > 0$  and  $2x^2 + 3x - 2 = 0$ , then what is the value of  $x$ ?

- A) 3
  - B) -2
  - C) 0.5
  - D) 1
- 

74) Radii of two circles are 6.4 cm and 3.5 cm. If they touch each other internally, then the distance between their centres is

- A) 2.9 cm
  - B) 9.9 cm
  - C) 3.1 cm
  - D) 2.4 cm
- 

75) Attendance register A contains names of 30 students in Maths class and attendance register B contains names of 35 students in English class. There are 20 identical names existing in both attendance registers. What is the total number of individual students whose names exist at least once in any of the two registers?

- A) 45
- B) 50
- C) 85
- D) 40

76) The ratio of copper to zinc in brass is 13 : 7. How much zinc will be there in 200 kg of brass?

- A) 107.7 kg
  - B) 20 kg
  - C) 70 kg
  - D) 130 kg
- 

77) Let  $A = \{1, 2, 3\}$  and  $B = \{a, b, c, d\}$ . What is the number of different relations that can be defined from set A to set B?

- A)  $2^{12}$
  - B) 12
  - C)  $12^2$
  - D) 7
- 

78)  $\sin 2x =$

- A)  $\sin x \cos x$
  - B)  $\sin x + \cos x$
  - C)  $2\sin x \cos x$
  - D)  $\sin x - \cos x$
- 

79) The value of  $\cot 10^\circ \cot 30^\circ \cot 60^\circ \cot 80^\circ$  is

- A)  $\sqrt{3}$
  - B) 0
  - C) 1
  - D) -1
- 

80) The value of  $(81)^{3/4}$  is

- A) 9
- B) 27
- C) 1
- D) 3

81) What is the value of  $\log_{36} 36$ ?

- A) 2
  - B) 1
  - C) 36
  - D) 0
- 

82) The fourth proportional to 0.15, 0.25, 9 is

- A) 5.4
  - B) 9.2
  - C) 14
  - D) 15
- 

83) The sides of a triangle are in the ratio 3 : 2 : 5 and its perimeter is 30 cm. The length of the longest side of the triangle is

- A) 10 cm
  - B) 12 cm
  - C) 15 cm
  - D) 20 cm
- 

84) The figure formed by two rays with the same initial point is

- A) an angle
  - B) a ray
  - C) a line segment
  - D) a line
- 

85) If  $\sin(45^\circ - x) = \cos(y + 45^\circ)$ , then the value of  $\sin(x - y)$  is

- A)  $1/2$
  - B) 0
  - C) 2
  - D) 1
- 

86) When a number is divided by a divisor, divisor is 25 times the quotient and 5 times the remainder. If the quotient is 16, then the number is

- A) 6400
  - B) 400
  - C) 500
  - D) 6480
- 

87) If  $\sin x = 3/6$ , then  $\cos x =$

- A)  $5/6$
  - B)  $\sqrt{3}/2$
  - C) 1
  - D)  $3/2$
- 

88) If A is a finite set containing n number of elements, then number of possible subsets of A is

- A)  $n - 1$
  - B)  $2^n$
  - C)  $2^{n-1}$
  - D)  $2^{n+1}$
- 

89) A solution of the equation  $(x + 2)(x - 3) + (x + 3)(x - 4) = x(2x - 5)$  is

- A)  $x = 5$
  - B)  $x = 6$
  - C)  $x = 7$
  - D)  $x = 4$
- 

90) If  $2^{x+4} - 2^{x+2} = 6$ , then  $x =$

- A) 0
  - B) -1
  - C) 1
  - D) 2
-

Question Paper No:

53553\_27

**Answer Key**

1. B 31. A 61. B
2. A 32. C 62. A
3. A 33. A 63. A
4. A 34. B 64. C
5. C 35. D 65. B
6. A 36. D 66. B
7. A 37. A 67. B
8. C 38. B 68. A
9. C 39. D 69. D
10. A 40. C 70. B
11. C 41. D 71. C
12. D 42. C 72. D
13. D 43. D 73. C
14. B 44. D 74. A
15. D 45. A 75. A
16. B 46. B 76. C
17. D 47. C 77. A
18. D 48. A 78. C
19. A 49. B 79. C
20. B 50. A 80. B
21. D 51. D 81. B
22. D 52. B 82. D
23. C 53. C 83. C
24. B 54. B 84. A
25. B 55. D 85. B
26. C 56. D 86. D
27. D 57. D 87. B
28. A 58. B 88. B
29. D 59. D 89. B
30. A 60. C 90. B