

Section 1 - Paper1-English Language

1) Select the correct form of plural from the given options.

With the 5 Km marathon walk I did this morning, my _____ are hurting.

- A) feet
 - B) feets
 - C) foots
 - D) foot
-

2) Find the most appropriate opposite meaning word:
VICTORIOUS

- A) Fortuitous
 - B) Defeated
 - C) Annexed
 - D) Efficacious
-

3) Select the correct option.

_____ teacher has a few favourite students from every class.

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

Read the below passage and answer the questions that follow:

Silent film

A silent film is a film with no synchronized recorded sound (and in particular, no audible dialogue). In silent films for entertainment, the plot may be conveyed by the use of title cards, written indications of the plot and key dialogue lines. The idea of combining motion pictures with recorded sound is nearly as old as film itself, but because of the technical challenges involved, the introduction of synchronized dialogue became practical only in the late 1920s with the perfection of the Audion amplifier tube and the advent of the Vitaphone system. During the silent-film era that existed from the mid-1890s to the late 1920s, a pianist, theater organist—or even, in large cities, a small orchestra—would often play music to accompany the films. Pianists and organists would play either from sheet music, or improvisation. The term silent film is a

retronym—a term created to retroactively distinguish something. Early sound films, starting with *The Jazz Singer* in 1927, were variously referred to as the "talkies," "sound films," or "talking pictures." Within a decade, the widespread production of silent films for popular entertainment had ceased, and the industry had moved fully into the sound era, in which movies were accompanied by synchronized sound recordings of spoken dialogue, music and sound effects. Most early motion pictures are considered lost because the nitrate film used in that era was extremely unstable and flammable. Additionally, many films were deliberately destroyed because they had little value in the era before home video. It has often been claimed that around 75 percent of silent films have been lost, though these estimates may be inaccurate due to a lack of numerical data. The earliest precursors to film began with image projection through the use of a device known as the magic lantern, which utilized a glass lens, a shutter, and a persistent light source (such as a powerful lantern) to project images from glass slides onto a wall. These slides were originally hand-painted, but, after the advent of photography in the 19th century, still photographs were sometimes used. Thus the invention of a practical photography apparatus preceded cinema by only fifty years.

4) Talkies are

- A) Sound effects
 - B) Spoken dialogues
 - C) Retronym
 - D) Sound films
-

5) Most early motion pictures were lost because

- A) the widespread production of silent films had ceased
 - B) they didn't have synchronized dialogues
 - C) the nitrate film used those days were extremely flammable
 - D) the projection was made using a lantern
-

6) During the silent-film era, a small orchestra in large cities would often play music to

- A) accompany the films
- B) convey the plot to the audience
- C) promote the silent film
- D) entertain the audience

7) The plot in silent movies can be conveyed through

- A) key dialogue lines
 - B) mime or gestures
 - C) theater organists
 - D) vitaphone system
-

8) Synchronized dialogues became practical in films during the

- A) mid 1890s
 - B) mid 1920s
 - C) late 1890s
 - D) late 1920s
-

9) Choose the most appropriate similar meaning word:
ATTEMPT

- A) Serve
 - B) Explain
 - C) Retreat
 - D) Strive
-

10) Select the right form of verb from the given options.

I _____ in a first-class hotel and it is too expensive for me.

- A) am going to stay
- B) will be staying
- C) am staying
- D) stayed

Section 2 - PaperI-Education and General Awareness

11) The intensity or the magnitude of the earthquakes is measured using

- A) Richter scale
 - B) Kepler scale
 - C) Secant scale
 - D) Beaufort scale
-

12) As per Article 173 of the Indian Constitution, to be a member of the Legislative Assembly he/she must NOT be less than

- A) 30 years of age
 - B) 20 years of age
 - C) 32 years of age
 - D) 25 years of age
-

13) For which stage of education did the New Educational Policy, 1986 recommend vocationalization of education?

- A) Higher
 - B) Primary
 - C) Elementary
 - D) Secondary
-

14) Teacher Training was renamed as 'Teacher Education' by which of the following commissions?

- A) Secondary Education Commission
 - B) Sadler Commission
 - C) Indian Education Commission
 - D) University Education Commission
-

15) Developing the sense of cooperation among university departments and other training institutions and providing suggestions for the development of state teacher educators is the function of which of the following agencies?

- A) State Board of Teacher Education
- B) State Council of Educational Research and Training
- C) State Institute of Education
- D) National Council of Educational Research and Training

Section 3 - Paper1-Reasoning

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

17) 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 logics are formulas.
Some formulas are methods.
All the methods are approaches.

Conclusions:

I) Some approaches are formulas.
II) Some methods are logics.
III) No method is logic.
IV) Some formulas are logics.

- A) Only II and III follow
B) Only I and II follow
C) Only I, IV and either II or III follow
D) Only II and IV follow

18) 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.

If $a \times b = 30$, then what is the value of a ?

Statement I : b is an even prime number

Statement II : a is an integer

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

19) In a certain code language RESIGN is written as 1962010815. How is CLARITY written in that code language?

- A) 413219102026
B) 413219102126
C) 413218102026
D) 413218102126
-

20) How many diagonals are there in a regular nonagon?

- A) 20
B) 9
C) 27
D) 16

Section 4 - Paper1-Teaching Aptitude

21) With respect to evaluation of students what does CCE stand for

- A) Continuous Comprehensive Evaluation
 - B) Cognitive Complex Evaluation
 - C) Complex Complete Evaluation
 - D) Complete Comprehensive Evaluation
-

22) Which of the following programmes was launched to achieve Universal Elementary Education as envisioned by the United Nations' Millennium Development Goals and thereafter mandated by the 86th amendment of the Constitution of India?

- A) District Primary Education Programme
 - B) Sarva Shiksha Abhiyan
 - C) Universal Primary Education Programme
 - D) Saakshar Bharat Mission
-

23) Which of the following is an example of an informal agency for a child's education?

- A) Community
 - B) College
 - C) University
 - D) School
-

24) "Children have innate inclination to imitate their seniors, both in mental and social development". This statement was given by

- A) Jean Piaget
 - B) Erik Erikson
 - C) Ivan Pavlov
 - D) James Mark Baldwin
-

25) Focus of the examination on rank ordering students or declaring them failed tilts the classroom climate and the school ethos towards

- A) healthy competition
- B) vicious competition
- C) passive competition
- D) joyful competition

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

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

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

(i) All India Primary Teachers Federation (AIPTF) aims at uniting all teachers working in the elementary level throughout India under one roof to foster the spirit of brotherhood/sisterhood and cooperation among all the members of the profession.

(ii) AIPTF also aims at safeguarding and promoting the rights and privileges of primary teachers on all matters relating to their employment and conditions of service and create consciousness about their duties and responsibilities.

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

28) In which of the following learning styles, students learn by carrying out physical activities rather than listening to a lecture or watching demonstrations in the class?

- A) Personalized Learning
 - B) Auditory Learning
 - C) Inquiry-Based Learning
 - D) Kinesthetic Learning
-

29) In a classroom environment, which of the following terms means 'to gossip idly'?

- A) Informal communication
- B) Chit-chat
- C) Non-formal communication
- D) Tattling

30) For effective classroom management, procedures should be explained, reinforced and practiced to the point until they become

- A) behaviour
- B) manners
- C) routine
- D) habit

Section 5 - PaperII-Physical Science

31) In a chemical reaction, $2\text{NO}(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{NO}_2(\text{g})$, if the concentration of O_2 is doubled what happens to the rate of the reaction?

- A) Reaction rate gets doubled
 - B) Reaction rate decreases to half
 - C) Reaction rate gets quadrupled
 - D) Reaction rate decreases to one-fourth
-

32) A water droplet of radius 10^{-7} m is charged with one electron charge. What is the minimum electric field required to keep it suspended? (Given, Density of water = 10^3 kg/m^3 , Electron Charge = $1.6 \times 10^{-19} \text{ C}$)

- A) 256.6 V/m
 - B) 0.6125 V/m
 - C) 0.2566 V/m
 - D) 612.5 V/m
-

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

- A) $\text{Au} > \text{Cu} > \text{Sn} > \text{Zn} > \text{Na}$
 - B) $\text{Na} > \text{Sn} > \text{Zn} > \text{Cu} > \text{Au}$
 - C) $\text{Na} > \text{Zn} > \text{Sn} > \text{Cu} > \text{Au}$
 - D) $\text{Au} > \text{Sn} > \text{Cu} > \text{Zn} > \text{Na}$
-

34) A straight long wire of radius 'a' carries a current 'I' uniformly distributed along its cross-section. The magnetic field B in the region $r < a$ will be proportional to

- A) $1/r^2$
 - B) r^2
 - C) r
 - D) $1/r$
-

35) Two 50 W electric bulbs are lit for 6 hours, and three 200 W bulbs for 10 hours every day. The electric energy consumed in 60 days is

- A) 712800 KJ
 - B) 1425600 J
 - C) 1425600 KJ
 - D) 712800000 J
-

36) A 500-kg communications satellite is in a circular geosynchronous orbit and completes one revolution about the earth in 24 hours at an altitude of 36300 km above the surface of the earth. Find the kinetic energy of the satellite. (Radius of the earth is 6400 km)

- A) 1.7 GJ
 - B) 2.4 GJ
 - C) 24 MJ
 - D) 54 MJ
-

37) The molecular (chemical) formula of propane gas is

- A) CH_4
 - B) C_4H_{10}
 - C) C_3H_8
 - D) C_2H_6
-

38) What is the potential due to a charge (q) at its own location?

- A) Infinite
 - B) q
 - C) 0
 - D) $1/q$
-

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

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

40) If a saline solution (0.9% m/V NaCl) with higher NaCl content is introduced into a person's body, then his blood cells will

- A) swell
- B) remain unchanged
- C) shrink
- D) coagulate

41) Which among the following substances have negative susceptibility?

- A) Diamagnetic substances
 - B) Ferromagnetic substances
 - C) Superparamagnetic substances
 - D) Paramagnetic substances
-

42) Mass of a copper rod at the equator is 10 kg. What will be its mass at the north pole?

- A) 12 kg
 - B) 10 kg
 - C) 9.5 kg
 - D) 10.5 kg
-

43) 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, $g = 10\text{m/s}^2$)

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

44) If two coherent sources of intensity ratio $36/25$ interfere to produce interference patterns, then the ratio of the minimum intensity to maximum intensity of the pattern is

- A) $1/121$
 - B) $121/3721$
 - C) $11/61$
 - D) $1/11$
-

45) Which of the following is an example of external combustion engine?

- A) Wankel engine
- B) Steam engine
- C) Gasoline engine
- D) Diesel engine

46) 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) 36.20%
 - B) 23.80%
 - C) 100%
 - D) 76.20%
-

47) If an observer is moving away from a stationary source of sound with a velocity $1/5$ th of the velocity of sound, the percentage decrease in the apparent frequency is

- A) 20%
 - B) 25%
 - C) 80%
 - D) 17%
-

48) The temperature at which a real gas obeys ideal gas law over an appreciable range of pressure is called

- A) Critical point
 - B) Ideal point
 - C) Triple point
 - D) Boyle point
-

49) A 150 g cricket ball is hit by a batsman with an initial velocity of 40 m/s at an angle 60° with the horizontal. Find its kinetic energy when it reaches its maximum height.

- A) 90 J
 - B) 120 J
 - C) 30 J
 - D) 15 J
-

50) What is the molecular mass of glucose? (Given, atomic mass of C = 12.011 amu, H = 1.008 amu, O = 16.00 amu and N = 14.00 amu)

- A) 264.162 amu
- B) 342.308 amu
- C) 180.162 amu
- D) 43.019 amu

Section 6 - PaperII-Biological Science

51) Which of the following models was proposed by Singer and Nicolson on the concept of cell membrane structure?

- A) Fluid Mosaic Model
 - B) Unit Membrane Model
 - C) Kavanau's Lipid Pillar Model
 - D) Danielli and Davson Model
-

52) In a human graafian follicle, a thick area that surrounds the secondary oocyte is termed as

- A) zona pellucida
 - B) corpus luteum
 - C) corona radiata
 - D) antrum
-

53) In mitochondria, the inner membrane forms a number of infoldings known as

- A) intermembrane space
 - B) matrix
 - C) outer membrane
 - D) cristae
-

54) The term 'Angiosperm' is derived from two greek words, angio and sperma. What do they mean?

- A) Moss, Plant
 - B) Young shoot, Plant
 - C) Naked, Seed
 - D) Covered, Seed
-

55) Which of the following phylum exhibits blind sac body plan and radial symmetry?

- A) Mollusca
- B) Arthropoda
- C) Cnidaria
- D) Annelida

56) Which of the following soil is formed by deposition of silt brought down by the rivers?

- A) Alluvial soil
 - B) Black soil
 - C) Red soil
 - D) Laterite soil
-

57) Cryptochromes which are photoreceptors found in plants, can sense which of the following colours of light?

- A) Blue
 - B) Yellow
 - C) Red
 - D) Green
-

58) Which of the following phylum contains the animals which are pseudocoelomates?

- A) Mollusca
 - B) Aschelminthes
 - C) Arthropoda
 - D) Annelida
-

59) In potato, which of the following parts of the stem serves as an organ for vegetative reproduction?

- A) Rhizome
 - B) Sucker
 - C) Tuber
 - D) Bulb
-

60) Which of the following cell organelle contains the reducing enzyme catalase and oxidase?

- A) Ribosome
- B) Centrosome
- C) Peroxisome
- D) Golgi apparatus

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

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

62) Which one of the following is an inexhaustible natural resource?

- A) Sunlight
 - B) Petroleum
 - C) Coal
 - D) Minerals
-

63) The three R's that will help us to conserve natural resource for long term use are

- A) Renew, Recycle, Rate
 - B) Reform, Reuse, Renewable
 - C) Reduce, Recycle, Reuse
 - D) Reproduce, Restore, Reduce
-

64) What is the role of decomposer in the ecosystem?

- A) kills other animal for food
 - B) make its own food
 - C) photosynthesis
 - D) absorb nutrients from dead tissue
-

65) The ability of an ecosystem to recover when the system is disturbed is termed as

- A) food web
- B) resilience stability
- C) food chain
- D) resistance stability

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

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

67) Biological nitrogen fixation is done by certain microorganism. Which of the following microorganism are found in the root nodules of legumes?

- A) Anabaena
 - B) Nostoc
 - C) Clostridium
 - D) Rhizobium
-

68) In prokaryotic cells glycolysis takes place in the

- A) Nucleus
 - B) Cytoplasm
 - C) Mitochondria
 - D) Ribosomes
-

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

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

70) Which of the following metabolic pathway is also known as EMP pathway?

- A) Urea cycle
- B) Gluconeogenesis
- C) Glycolysis
- D) Krebs cycle

Section 7 - PaperII-Mathematics

71) If 'a' and 'b' are two odd numbers, then which of the following yields an even number?

- A) $a + b + 2ab$
 - B) $a + b + ab$
 - C) $a + b$
 - D) $a + b + 1$
-

72) The angles of a triangle are $(x + 6)^\circ$, $(2x - 3)^\circ$ and $(3x + 3)^\circ$. The value of 'x' is

- A) 30
 - B) 27
 - C) 31
 - D) 29
-

73) 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) 40
 - B) 50
 - C) 45
 - D) 85
-

74) A kite is flying at a height of 15 m from level ground is attached to a string inclined at 30° to the horizontal. The length of the string is

- A) 25 m
 - B) 20 m
 - C) 30 m
 - D) 15 m
-

75) If $a : b = b : c$, then $a^4 : b^4 =$

- A) $a^2 : c^2$
- B) $ac : b^2$
- C) $b : ac$
- D) $c^2 : a$

76) If $\log 2 = 0.3010303$, then the number of digits in 2^{50} is

- A) 16
 - B) 18
 - C) 23
 - D) 14
-

77) The point of intersection of the angle bisectors of a triangle is called

- A) circumcentre
 - B) orthocentre
 - C) centroid
 - D) incentre
-

78) If two-third of A and four-fifth of B are equal, then

A : B =

- A) 3 : 2
 - B) 6 : 5
 - C) 9 : 10
 - D) 5 : 4
-

79) $\sin 2x =$

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

80) One of the base angles of an isosceles triangle is 60° . The vertical angle of the triangle is

- A) 30°
- B) 80°
- C) 60°
- D) 45°

81) If $A = \{a, b, c, d\}$ and $B = \{x, y, z\}$. The number of elements in $A \times B$ is

- A) 12
 - B) 11
 - C) 3
 - D) 4
-

82) The value of $\log_3 27$ is

- A) 1
 - B) 0
 - C) 3
 - D) 9
-

83) The value of $1/(1 + \tan^2 \theta)$ is equivalent to

- A) $\cos \theta$
 - B) $\sin \theta$
 - C) $\cos^2 \theta$
 - D) 1
-

84) If $(8)^{2/3} \times (16)^{-1/4} = 2^x$, then the value of 'x' is

- A) 0
 - B) 2
 - C) 4
 - D) 1
-

85) If $f(x) = 3x^2 - 1$ and $g(x) = -2x + 7$, then $(f + g)(-3) =$

- A) 14
 - B) 39
 - C) -41
 - D) 20
-

86) If $\tan x = \sin 90^\circ \cos 60^\circ + \sin 30^\circ$, then the value of 'x' is

- A) 60°
- B) 90°
- C) 30°
- D) 45°

87) What is the simplified value of $(8^{2/3} \times 2^{-2} \div 2^0)$?

- A) 4
 - B) 1
 - C) 2
 - D) 0
-

88) The solutions of the system of equations $2x + 3y = 8$, $-x + 2y = 3$ are given by

- A) $x = 1, y = -2$
 - B) $x = 0, y = 2$
 - C) $x = -1, y = 2$
 - D) $x = 1, y = 2$
-

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

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

90) Taking 'x', 'y' as variables and 'k' as a constant, if $x = 2y$ and $y + k = 11$ and $x - 2k = -18$, then the value of $(x+y)$ is

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

Question Paper No:	53587_40
Answer Key	

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