

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

2014

TEST BOOKLET SERIES

TEST BOOKLET

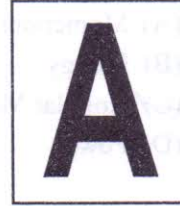
Paper - IV

Time allowed : 3 hours

Full marks : 200

Answer **all** the question

Questions are of equal value



Serial No.....

Ticket No. :

Signature of the Candidate :

INSTRUCTIONS

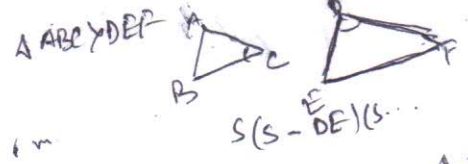
Candidates should read the following instructions carefully before answering the questions :

1. This booklet consists of 12 pages including this front page. Verify the Page Nos. and Test Booklet Series on each page and bring at once to the Invigilator's notice and discrepancy.
2. Answer will have to be given in the Special Answers-Sheet supplied for the purpose.
3. Before you proceed to mark the Answer-Sheet in response to various items in the Test Booklet, you have to fill in some particulars in the Answer-Sheet as per instructions sent to you in the Admit Card. **Do not fold the Answer-Sheet as this will result in error in your marks.**
4. All questions are of multiple-choice answer-type. You will find your probable answers (A), (B), (C) and (D) against each question. Find out which of the four answers appears to you to be correct or the best. Now darken the oval corresponding to the letter of the selected answer in the Answer-Sheet with **Black Ball Point Pen** as per instructions printed on the reverse of the Admit Card and in the Answer-Sheet.
5. If more than one oval is encoded for a particular answer, it will be treated as a wrong answer.
6. **There will be negative marking for wrong answers; 2/3 mark will be deducted for each wrong answer.**
7. **The Special Answer-Sheet should be handed over to the Invigilator before leaving the Examination Hall. You are permitted to take away the used Test Booklet after completion of the examination.**

[Please Turn Over]

30, 40
20, 40
90
10, 20, 15

30
40
90
10, 20, 15



$\frac{AB}{DE} = \frac{2}{1}$

$\frac{BC}{EF} = \frac{2}{1}$

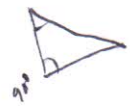
$\frac{1}{2}(DE+EF+DF)$

$= \frac{1}{2}(AB+BC+CA)$

BCW-(C)8/14

A-2

- Newton's third law gives directly the law of conservation of
 - Momentum
 - Energy
 - Angular Momentum
 - Power
- In human beings, the number of chromosomes in an ordinary cell is
 - 46
 - 48
 - 50
 - 52
- In a right angled isosceles triangle, the angles that the two equal sides make with the hypotenuse is
 - 30°
 - 45°
 - 60°
 - 90°
- An amount of Rs. 10000 is kept in a bank at 10% annual compound interest. After 2 years, the interest will be
 - Rs. 2000
 - Rs. 2050
 - Rs. 2100
 - Rs. 2200
- The two satellites of Mars are
 - Io and Europa
 - Ganymede and Callisto
 - Titan and Charon
 - Phobos and Deimos
- The reaction that takes place inside the Sun to power it is
 - Fission
 - Fusion
 - Oxidation
 - Decay



$10000 \times \frac{110}{100} \times \frac{110}{100}$

12100

10000

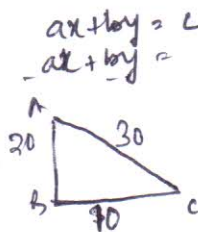
2100

- A body, falling freely from rest, covers a distance of 4 m in the first second. The acceleration due to gravity at that place is
 - 10.0 m/sec²
 - 9.8 m/sec²
 - 8.0 m/sec²
 - 7.5 m/sec²
- ABC and DEF are two similar triangles. If ABC has an area of 100 cm² and if AB : DE = 2:1, then the area of DEF is
 - 25 cm²
 - 50 cm²
 - 200 cm²
 - 400 cm²
- The continent where modern man originated is
 - Asia
 - Europe
 - South America
 - Africa
- Islets of Langerhans are responsible for the secretion of
 - testosterone
 - oestrogens
 - insulin
 - progesterone
- The wave length of visible light lies between
 - 200 - 400 nm.
 - 400 - 700 nm.
 - 700 - 1000 nm.
 - 1000 - 2000 nm.
- Naphthalene has the formula
 - C₆H₆
 - C₁₀H₈
 - C₁₂H₁₀
 - C₁₂H₁₂

$S = \frac{a(t+2)}{\sqrt{s(s-2a)(s-a)}}$

$\frac{v}{f} = \frac{v-u}{d}$
 $f = \frac{v-u}{d}$
 $\frac{v}{f} = \frac{v-u}{d}$
 $f = \frac{v-u}{d}$

A-3



$a_0 + a_1x + a_2x^2 + \dots + a_nx^n = 0$
 $x = \frac{a_0}{a_1}$
 $\frac{1}{2} \times 20 \times 10 = 100$
 $\frac{1}{2} \times 10 \times 5 = 25$
 BCW-(C)8/14

13. If the Earth-Sun distance is increased by a factor of four, the length of the year will increase approximately by a factor of
- (A) Two
(B) Four
(C) Eight
(D) Sixteen
14. The pair of equations $ax + by = c$
 $2ax + 2by = 2c + d$, where none of the constants a, b, c, d are zero, has
- (A) a unique solution
(B) no solution
(C) two solutions
(D) an infinite number of solutions
15. The following substance is not an oxidizing agent
- (A) Ozone
(B) Chloride
(C) Potassium
(D) Fluorine
16. The blood cells that defend the body against infections are
- (A) white blood cells
(B) red blood cells
(C) platelets
(D) erythrocytes
17. The following is an example of a marsupial
- (A) Whale
(B) Bat
(C) Mole
(D) Kangaroo
18. Given that $X > Y$ and $Y \leq Z$, the following statement is true.
- (A) $X > -Y$ and $-Y \geq -Z$
(B) $-X < Y$ and $-Y \geq -Z$
(C) $-X < -Y \leq -Z$
(D) $-X < -Y \geq -Z$

19. An equation $a_0 + a_1x^1 + a_2x^2 + \dots + a_nx^n = 0$ where $a_n \neq 0$, has
- (A) no root
(B) $n - 1$ roots
(C) n roots
(D) $n + 1$ roots
20. The most electronegative among the elements sodium, potassium, oxygen and fluorine is
- (A) sodium
(B) potassium
(C) oxygen
(D) fluorine
21. The technique of barium X-ray utilizes the following property of barium sulphate
- (A) It is opaque to X-rays
(B) It is radioactive
(C) It is transparent to X-rays
(D) It is easily absorbed by tissues
22. The technique of MRI uses the phenomenon of
- (A) Nuclear Magnetic Resonance
(B) Electron Cyclotron Resonance
(C) Optical Resonance
(D) Microwave Resonance
23. In Bt Cotton, Bt stands for
- (A) Bacillus thermoglucosidasius
(B) Bacillus thuringiensis
(C) Bacterium tenericutes
(D) Terminator Bacteria
24. In computers, the storage medium which cannot usually be modified is known as
- (A) ROM
(B) RAM
(C) Hard disk
(D) Flash drive

$x > y \leq z$

$20 \left(\frac{c-hv}{4} \right) + 2by = 2cd$
 $2c-2b$

25. The acronym CCD stands for
 (A) charge coupled device
 (B) control circuit device
 (C) credit card device
 (D) configuration control device
26. The gas that India's Mars Mission is looking for as evidence of life is
 (A) oxygen
 (B) methane
 (C) carbon dioxide
 (D) sulphur dioxide
27. A terminator gene in an organism
 (A) kills the organism ✗
 (B) switches off metabolism ✗
 (C) makes the organism sterile
 (D) terminates all protein pathways
28. A magic bullet is a
 (A) bullet that kills a person magically
 (B) drug that selectively targets a disease without other effects
 (C) guided missile
 (D) high magnification microscope
29. One tree which yields biodiesel is
 (A) jatropha
 (B) teak
 (C) rubber
 (D) sal
30. The basic molecule binds with other molecules to form a polymer is called
 (A) macromolecule
 (B) monomolecule
 (C) monomer
 (D) monolith
31. Greenhouse gases emit and absorb radiation within the
 (A) microwave region
 (B) infrared region
 (C) visible region
 (D) ultra violet region
32. Microwave ovens heat water in food because
 (A) water is a polar molecule
 (B) the heat capacity of water is high
 (C) water flows easily
 (D) water molecule is small
33. The gas used in refrigerators that destroys the ozone layer is
 (A) ammonia
 (B) chlorofluorocarbon
 (C) nitrous oxide
 (D) methane
34. The abbreviation 'http' stands for
 (A) HTML Transfer Technology Process
 (B) Hyperspace Terms and Tech Protocol
 (C) Hyperspace Techniques Tech Progress
 (D) Hyper Text Transfer Protocol
35. The following is not a programming language
 (A) C ++
 (B) JAVA
 (C) Office Suite
 (D) Fortran
36. The half life period of an isotope is 2 hours. After 6 hours the fraction of the initial quantity of the isotope left behind will be
 (A) 1/6
 (B) 1/8
 (C) 1/12
 (D) 1/16

$$1 \rightarrow \frac{1}{2} \rightarrow \frac{1}{4} \rightarrow \frac{1}{8}$$

37. The number of bits in a byte is
(A) 2
(B) 4
 (C) 8
(D) 16
38. The mode in which a digital adder involving logic gates add data is
 (A) binary
(B) octal
(C) decimal
(D) hexadecimal
39. Epoxy resins are used as
(A) detergents
(B) insecticides
(C) adhesives
 (D) moth repellents
40. The book 'Silent Spring' written by Rachel Carson described the detrimental effects of
 (A) chemical fertilizers
(B) deforestation
(C) chemical pesticides
(D) green house gases
41. Which line demarcates the coastal area of Bay of West Bengal ?
(A) High Tide Line
 (B) Dampier & Hodge's line
(C) Line of Gangetic Delta ✗
(D) Low Tide Line
42. Name the turtle which rests within West Bengal sea coasts
(A) Batagur busca
(B) Indian Soft Shelled Gangetic Turtle
(C) Indian Flap Shelled Turtle
 (D) Olive Ridley
43. For which mangrove species maximum sweet water influx is required ?
(A) Keora
(B) Sundari
(C) Kantra
(D) Goran
44. Black panther is a
(A) Panther
 (B) Jaguar
(C) Tiger
 (D) Leopard
45. Which of the following Tiger Reserves is called Kingfishers' Paradise ?
(A) Buxa
(B) Corbett
(C) Sundarban
 (D) Kaziranga
46. World Environment Day is on
(A) 5th September
 (B) 5th June
(C) 15th September
(D) 15th June
47. Depletion of ozone layer increases the incidence of
(A) Blood cancer
(B) Lung cancer
 (C) Skin cancer
(D) Brain cancer
48. How many biodiversity rich centres are there in India ?
(A) 1
 (B) 2
(C) 12
(D) More than 12

49. Hot spots are areas with
(A) Low diversity
(B) High diversity
 (C) Genetic diversity
 (D) Ecological diversity
50. An estuary is a
(A) Body of water
(B) coastal body of water
 (C) semiclosed coastal body of water
(D) water body of lake
51. Which gas caused industrial disaster in Bhopal in December, 1984
(A) Oleum
(B) Fuel
 (C) MIC
(D) Methylamine
52. Natural source of O_2 in environment is
(A) Respiration
(B) Transpiration
 (C) Photosynthesis
(D) Combustion
53. The depth of water of Wet Land does not exceed
(A) 6 meters
(B) 10 meters
 (C) 6 feet
(D) 10 feet
54. To control the Global warming we should control the use of
 (A) fossil fuel
(B) Renewable energy
(C) Solar energy
(D) atomic energy
55. Blackfoot disease is caused by which pollutant ?
(A) Mercury
 (B) Arsenic
(C) Copper
(D) Iron
56. Which movement is related with Forest protection?
 (A) Chipko movement
(B) Narmada Bachao movement
(C) Narmada Dam movement
(D) Green Bench
57. Which bird is highly threatened by PCB ?
 (A) Sparrow
(B) Dove
(C) Ostrich
(D) Penguin
58. Minamata disease is caused by which metal contamination ?
(A) Zinc
(B) Lead
(C) Copper
 (D) Mercury
59. Contamination of which metal with soil makes it hard for trees to take up water ?
 (A) Aluminium
(B) Magnesium
(C) Copper
(D) Zinc
60. Which ocean is involved with the emergence of the La Nina climate pattern ?
(A) The global ocean
 (B) The Pacific ocean
(C) The Atlantic ocean
(D) The Indian ocean
61. Netaji Subhas Chandra Bose was born in the year
 (A) 1897
(B) 1898
(C) 1902
(D) None of the above

62. The discovery of 'jumping genes' is associated with the name of
 (A) Sir Jagdish Chandra Bose
 ✓ (B) Sir J. B. S. Haldane
 (C) Dr. Barbara Mcklintock
 (D) M. S. Swaminathan
63. Amartya Sen was awarded Nobel Memorial Prize in Economic sciences for his contributions to
 (A) Growth economics
 (B) Social choice theory
 ✓ (C) Welfare economics
 (D) Financial economics
64. Albert Einstein was awarded Nobel Prize for his work on
 (A) General theory of relativity
 ✓ (B) Special theory of relativity
 (C) Quantum physics
 (D) Theory of photo electricity
65. The battle of Waterloo took place in the year
 (A) 1812
 ✓ (B) 1815
 (C) 1820
 (D) 1821
66. Sigmund Freud's name is associated with
 (A) chemistry
 ✓ (B) psychology
 (C) physiology
 (D) painting
67. The headquarters of the Tibetan Government in exile are located in
 (A) Darjeeling
 ✓ (B) Dharmashala
 (C) New Delhi
 (D) Shimla
68. The University of Calcutta was established in the year
 ✓ (A) 1857
 (B) 1865
 (C) 1885
 (D) 1898
69. The art work 'The Last Supper' was painted by
 (A) Salvador Dali
 (B) Pablo Picasso
 (C) Nandalal Bose
 ✓ (D) Leonardo da Vinci
70. DNA was discovered by
 (A) Hargovind Khorana
 ✓ (B) James Watson and Francis Crick
 (C) Francis Crick and Alexander Fleming
 (D) James Watson and Hargovind Khorana
71. India won its first gold in summer Olympic hockey in
 (A) 1928 Amsterdam Olympics
 (B) 1932 Los Angeles Olympics
 ✓ (C) 1936 Berlin Olympics
 (D) 1948 London Olympics
72. M. S. Subhalakshmi was a noted
 (A) Painter
 (B) Educationist
 (C) Politician
 ✓ (D) Singer
73. Ferguson college is located in
 (A) Mumbai
 (B) Nagpur
 ✓ (C) Pune
 (D) Delhi
74. Uber cup is associated with
 (A) Tennis
 (B) Badminton
 (C) Squash
 ✓ (D) Golf

75. The European Union Parliament holds its sessions in

- (A) Brussels and Strassbourg
- (B) Brussels
- (C) Strassbourg
- (D) Strassbourg and Paris

76. The highest literary award in India is

- (A) Jnanpeeth
- (B) Bharat Ratna
- (C) Rabindra Puraskar
- (D) Sahitya Academy Award

77. Of the following political personalities who was not assassinated ?

- (A) Abraham Lincoln
- (B) John F. Kennedy
- (C) Adolf Hitler
- (D) Olaf Palme

78. Stephen Hawking is famous for his contributions to

- (A) Nuclear Physics
- (B) Quantum theory
- (C) String theory
- (D) Astrophysics

79. The Palk Strait lies between

- (A) India and Sri Lanka
- (B) India and Pakistan
- (C) Sri Lanka and Maldives
- (D) India and Bangladesh

80. The Reserve Bank of India was established in the year

- (A) 1951
- (B) 1950
- (C) 1935
- (D) 1926

81. Warsaw convention (1929) is related to

- (A) Expansion of trade and commerce among erstwhile communist states
- (B) Aviation sector
- (C) Sports and games
- (D) Sea transport

82. Ramsar convention (1971) is related to protection of

- (A) national monuments
- (B) wetlands
- (C) national parks and forests
- (D) coral reefs

83. Article 280 of the constitution of India deals with

- (A) Election Commission
- (B) Planning Commission
- (C) Finance Commission
- (D) Comptroller and Auditor General

84. President's rule may be promulgated in an Indian state under

- (A) Article 243
- (B) Article 298
- (C) Article 356
- (D) Article 370

85. The first Lok Sabha speaker in free India was

- (A) S. Radhakrishnan
- (B) Samar Sen
- (C) Radhabinod Pal
- (D) G. V. Mavalankar

86. Which of the following uranium isotopes is mostly used in nuclear reactors and nuclear weapons ?

- (A) Uranium - 232
- (B) Uranium - 234
- (C) Uranium - 235
- (D) Uranium - 238

87. MRI stands for
- (A) Magnetic Resonance Imaging
 - (B) Magnetic Reflection Imaging
 - (C) Machine Readable Imaging
 - (D) Mechanical Reading Instrument
88. The number of banks nationalized by the Government of India in 1969 was
- (A) 4
 - (B) 11
 - (C) 14
 - (D) 20
89. The Bamiyan Buddhas were located in
- (A) Iran
 - (B) Afganistan
 - (C) Nepal
 - (D) Sri Lanka
90. Rumtek Monastery is located in
- (A) Sikkim
 - (B) Himachal Pradesh
 - (C) Jammu and Kashmir
 - (D) Tibet
91. 'Deshikottama' award is conferred by
- (A) University of Calcutta
 - (B) Visva Bharati University
 - (C) Rabindra Bharati University
 - (D) Benaras Hindu University
92. Jadugoda mine is famous for
- (A) Silver
 - (B) Zinc
 - (C) Uranium
 - (D) Mica
93. Who is brand ambassador of Gujarat Tourism ?
- (A) Sachin Tendulkar
 - (B) Amitabh Bachhan
 - (C) Shah Rukh Khan
 - (D) Narendra Modi
94. Which of the following cities is considered as India's diamond city ?
- (A) Mumbai
 - (B) Surat
 - (C) Jaipur
 - (D) Hyderabad
95. The venue of the 2014 World Chess Championship Final was
- (A) Chennai
 - (B) Manila
 - (C) Sochi
 - (D) Oslo
96. Fortaleza Declaration and Action Plan was taken during
- (A) BRICS Summit (2014)
 - (B) G-8 Summit (2012)
 - (C) G-20 Summit (2013)
 - (D) Commonwealth Heads of Government Summit (2014)
97. Association of South East Asian Nations (ASEAN) was formed in
- (A) 1960
 - (B) 1967
 - (C) 1979
 - (D) 1991
98. With which sport is Cara Black associated ?
- (A) Shooting
 - (B) Table Tennis
 - (C) Tennis
 - (D) Cricket

99. Ashraf Ghani Ahmadzai is a national of

- (A) Afganistan
- (B) Syria
- (C) Iran
- ✓(D) Iraq

100. 28th June, 1914 is important date as on that day

- (A) The Titanic ship sank
- (B) The Jallianwala Bagh massacre took place
- ✓(C) Germany attacked France
- (D) Archduke Franz Ferdinand of Austria was assassinated.

$4 \times \left(\frac{2 \pi r^2}{\sqrt{v}} \right)$