

# **APSC JE**

**Previous Year Paper**  
**(Civil Engg.) Paper-II**  
**16 July 2023**

**Adda247**

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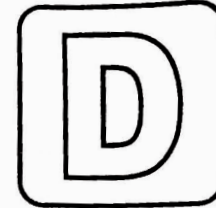
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Test Booklet No. :

00540

TEST BOOKLET  
Paper—II  
( CIVIL ENGINEERING )

Series



Full Marks : 100

Time Allowed : 2 Hours

Read the following instructions carefully before you begin to answer the questions :

1. The name of the Subject, Roll Number as mentioned in the Admission Certificate, Test Booklet No. and Series are to be written legibly and correctly in the space provided on the Answer-Sheet with Black/Blue ballpoint pen.
2. Answer-Sheet without marking Series as mentioned above in the space provided for in the Answer-Sheet shall not be evaluated.
3. All questions carry equal marks.

The Answer-Sheet should be submitted to the Invigilator.

Directions for giving the answers : Directions for answering questions have already been issued to the respective candidates in the 'Instructions for marking in the OMR Answer-Sheet' along with the Admit Card and Specimen Copy of the OMR Answer-Sheet.

Example :

Suppose the following question is asked :

The capital of Bangladesh is

- (A) Chennai  
(B) London  
(C) Dhaka  
(D) Dhubri

You will have four alternatives in the Answer-Sheet for your response corresponding to each question of the Test Booklet as below :

(A) (B) (C) (D)

In the above illustration, if your chosen response is alternative (C), i.e., Dhaka, then the same should be marked on the Answer-Sheet by blackening the relevant circle with a Black/Blue ballpoint pen only as below :

(A) (B) (C) (D)

The example shown above is the only correct method of answering.

4. Use of eraser, blade, chemical whitener fluid to rectify any response is prohibited.
5. Please ensure that the Test Booklet has the required number of pages (16) immediately after opening the Booklet. In case any page(s) is/are missing, please report the same to the Invigilator.
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N.B. : There will be negative marking @ 0.25 per 1 (one) mark against each wrong answer.

/114-D

[ No. of Questions : 100 ]

SEAL



1. In India, mean sea level used for fixing reduced level is at
  - (A) Goa
  - (B) Mumbai
  - (C) Visakhapatnam
  - (D) None of the above
2. For hilly region, the ideal method of contouring is
  - (A) direct method ✓
  - (B) method of squares
  - (C) cross-section method
  - (D) radial line method
3. Eutrophication of water bodies is caused by the
  - (A) discharge of toxic substance
  - (B) excessive discharge of nutrients
  - (C) excessive discharge of suspended solids
  - (D) excessive discharge of chlorides
4. For concrete exposed to dry conditions, the minimum curing period is
  - (A) 5 days
  - (B) 7 days
  - (C) 10 days ✓
  - (D) 14 days
5. The number of earthquake zones in India as per the Bureau of Indian Standards is
  - (A) 4
  - (B) 5
  - (C) 6
  - (D) 7
6. What is meant by GPS?
  - (A) Geographic Positional System ✓
  - (B) Global Processing System
  - (C) Geographic Processing System
  - (D) Global Positioning System
7. The length of a surveyor's chain is
  - (A) 33 ft
  - (B) 66 ft ✓
  - (C) 100 ft
  - (D) 133 ft
8. A rectangular area of  $12 \text{ km}^2$  is represented by  $1.5 \text{ cm} \times 0.50 \text{ cm}$  rectangle on the map. The scale of the map is
  - (A) 1 : 400000
  - (B) 1 : 12000
  - (C) 1 : 16000 ✓
  - (D) 1 : 1000



9. If the fore bearing of a line is  $36^{\circ}15'$ , its back bearing will be
- (A)  $36^{\circ}15'$   
(B)  $126^{\circ}15'$   
(C)  $143^{\circ}45'$  ✓  
(D)  $216^{\circ}15'$
10. A series of closely spaced contour lines represents a
- (A) steep slope ✓  
(B) gentle slope  
(C) uniform slope  
(D) plane surface
11. The expected outturn for earthwork in the excavation in ordinary soil per workman per day is
- (A) 1.00 cu m ✓  
(B) 2.00 cu m  
(C) 3.00 cu m  
(D) 4.00 cu m
12. Damp-proof coating (DPC) is measured in
- (A) cu m ✓  
(B) sq m  
(C) m  
(D) None of the above
13. As per the Indian Standard Specifications for Drinking Water (IS : 10500-1983), the desirable limit of pH value in drinking water is
- (A) 3.5 to 6.5  
(B) 4.5 to 7.5  
(C) 2.5 to 5.5 ✓  
(D) 6.5 to 8.5
14. If water required for 1 bag of cement is 30 L, the water-cement ratio is
- (A) 0.40  
(B) 0.50  
(C) 0.60 ✓  
(D) None of the above
15. Lime is used as an admixture for improving
- (A) sandy soil  
(B) loam ✓  
(C) residual soil  
(D) black cotton soil
16. Which of the following instruments is used for measurement of specific gravity?
- (A) Pycnometer ✓  
(B) Vicat apparatus  
(C) Penetrometer  
(D) None of the above

17. As per IS Code 1904 : 1986, the minimum allowable distance for planting trees from foundations of buildings is
- (A) 2 m  
(B) 4 m  
(C) 6 m  
(D) 8 m ✓
18. To make one cubic metre 1 : 2 : 4 by volume of concrete, the volume of coarse aggregate is
- (A) 0.95 m<sup>3</sup>  
(B) 0.85 m<sup>3</sup>  
(C) 0.75 m<sup>3</sup> ✓  
(D) 0.65 m<sup>3</sup>
19. When the water table is under the base of the footing at a depth equal to half of the width of the footing, the bearing capacity of a soil is reduced to
- (A) one-fourth ✓  
(B) one-half  
(C) two-thirds  
(D) three-fourths
20. The most common cause of acidity in water is
- (A) hydrogen  
(B) oxygen  
(C) carbon dioxide  
(D) All of the above ✓
21. Slow sand filters are efficient to remove the bacteria from the raw water to an extent of
- (A) 50%  
(B) 70%  
(C) 85%  
(D) 99% ✓
22. Jumper is a tool used for
- (A) testing of stones  
(B) quarrying of stones  
(C) dressing of stones  
(D) None of the above
23. As compared to top rail, the bottom and lock rails in a door frame are normally made
- (A) thinner  
(B) thicker  
(C) wider  
(D) narrower ✓
24. The water-bearing strata, i.e., layers of sand, gravel, etc., are called
- (A) an aquiclude  
(B) an aquifuge  
(C) an aquifer  
(D) a zone of saturation ✓

25. The minimum dissolved oxygen which should always be present in water in order to save the aquatic life is

- (A) 1 ppm
- (B) 4 ppm
- (C) 10 ppm
- (D) 40 ppm

26. As per IS 1661 : 1972, the recommended thickness of single-coat plaster for both internal and external work situations is

- (A) 3 mm to 5 mm
- (B) 8 mm to 10 mm
- (C) 10 mm to 15 mm
- (D) 12 mm to 18 mm

27. Which of the following is a reason for negative error in chaining?

- (A) Sag in chain
- (B) Chain not being straight
- (C) Rise in temperature
- (D) Chain getting out of line due to wrong ranging

28. The horizontal angle between the true meridian and a survey line is called

- (A) magnetic bearing
- (B) azimuth
- (C) dip
- (D) magnetic declination

29. In the linear method of setting out curve, which of the following is not used?

- (A) Tape
- (B) Chain
- (C) Theodolite
- (D) Compass

30. The process of mixing clay, water and other ingredients to make brick is known as

- (A) kneading
- (B) moulding
- (C) pugging
- (D) drying

31. The method of surveying in which fieldwork and plotting work are done simultaneously is called

- (A) compass surveying
- (B) levelling
- (C) plane tabling
- (D) chain surveying

32. The alternate name of trapezoidal formula is

- (A) average end area method
- (B) coordinate method
- (C) prismoidal method
- (D) Simpson's rule



33. The temperature range in a cement kiln is

- (A) 500 °C to 1000 °C
- (B) 1000 °C to 1200 °C ✓
- (C) 1300 °C to 1500 °C
- (D) 1600 °C to 2000 °C

34. The flow net in the seepage of water through a soil medium is a network of

- (A) flow lines only
- (B) equipotential lines only
- (C) flow lines and equipotential lines
- (D) water particles and their movement in the soil

35. Putty is made up of

- (A) white lead and turpentine
- (B) powdered chalk and raw linseed oil
- (C) red lead and linseed oil
- (D) zinc oxide and boiled linseed oil

36. The crushing strength of good building stone should be more than

- (A) 50 MPa ✓
- (B) 100 MPa
- (C) 150 MPa
- (D) 200 MPa

37. Which of the following is highly permeable?

- (A) Clay
- (B) Fine sand
- (C) Coarse sand
- (D) Gravel

38. Compaction is due to

- (A) reduction of air voids
- (B) expulsion of pore water
- (C) Both (A) and (B) ✓
- (D) None of (A) and (B)

39. Temporary hardness of water is due to the presence of

- (A) chlorides ✓
- (B) carbonates
- (C) sulphates
- (D) nitrates

40. Which one of the following is universally practised for disinfection of water?

- (A) Boiling ✓
- (B) Excess lime treatment
- (C) Ultraviolet ray treatment
- (D) Chlorination

41. Brick walls are measured in sq m if the thickness of the wall is
- (A) 10 cm  
(B) 15 cm  
(C) 20 cm  
(D) None of the above
42. A cement concrete road is 1000 m long, 8 m wide and 15 cm thick over the sub-base of 10 cm thick gravel. The box cutting of the road crust is
- (A) 500 m<sup>3</sup>  
(B) 1000 m<sup>3</sup>  
(C) 1500 m<sup>3</sup> ✓  
(D) 2000 m<sup>3</sup>
43. For 12 mm thick cement plastering 1 : 6 on 100 sq m new brickwork, the quantity of cement is
- (A) 0.200 m<sup>3</sup>  
(B) 0.247 m<sup>3</sup> ✓  
(C) 0.274 m<sup>3</sup>  
(D) 0.295 m<sup>3</sup>
44. The height of the sink of washbasin above the floor level is kept at
- (A) 60 cm  
(B) 70 cm  
(C) 75 cm to 80 cm ✓  
(D) 90 cm
45. The total length of a cranked bar through a distance  $d$  at 45° in case of a beam of effective length  $L$  is
- (A)  $L + 0.42d$   
(B)  $L + (2 \times 0.42d)$  ✓  
(C)  $L - 0.42d$   
(D)  $L - (2 \times 0.42d)$
46. Particles of size around 1 micron or  $10^{-6}$  m are best removed by
- (A) filtration ✓  
(B) plain sedimentation  
(C) chemical coagulation  
(D) chemical precipitation
47. Dissolved oxygen in a stream is
- (A) maximum at noon ✓  
(B) minimum at noon  
(C) maximum at midnight  
(D) same throughout the day
48. The length to width ratio of septic tank is generally assumed as
- (A) 2 : 1 ✓  
(B) 3 : 1  
(C) 4 : 1  
(D) 2.5 : 1

49. What is the BOD value of strong sewage?
- (A) 250–350 ppm  
(B) 450–550 ppm ✓  
(C) 550–650 ppm  
(D) 650–750 ppm
50. From the consideration of earthquake resistance, the plan of a building preferred is
- (A) square ✓  
(B) rectangular  
(C) T-shaped  
(D) L-shaped
51. Varnish is generally made of
- (A) spirit  
(B) solvent  
(C) resin  
(D) Both (B) and (C) ✓
52. The powdered rock which includes all kinds of disintegrated rock is known as
- (A) alluvial soil ✓  
(B) red soil  
(C) murrum  
(D) shale
53. Quicksand is
- (A) a sand which can act as a quick filter  
(B) a uniformly graded sand  
(C) the condition when cohesionless soil loses its shear strength due to upward flow water ✓  
(D) the condition focussing quick flow of water through the soil
54. The moisture content of clayey soil is gradually decreased from a large value. What will be the correct sequence of the occurrence of the following limits?
- Shrinkage limit
  - Plastic limit
  - Liquid limit
- (A) 1, 2, 3  
(B) 1, 3, 2  
(C) 3, 2, 1 ✓  
(D) 3, 1, 2
55. Sewerage system is designed for
- (A) maximum flow only ✓  
(B) minimum flow only  
(C) average flow only  
(D) maximum flow and minimum flow



56. Ledge is a
- (A) horizontal member of a shutter ✓
  - (B) horizontal member of a door frame
  - (C) vertical member of a shutter
  - (D) vertical member of a door frame
57. Working from whole to part is done in surveying in order to ensure that
- (A) survey work is completed more quickly
  - (B) number of errors is minimum
  - (C) plotting is done more quickly
  - (D) errors and mistakes of one portion do not affect the remaining portion
58. LEED, the most widely used green building rating system in the world, stands for
- (A) Leadership in Energy and Efficiency Design ✓
  - (B) Leadership in Energy and Efficiency Document
  - (C) Leadership in Energy and Environmental Design
  - (D) Leadership in Energy and Environmental Document
59. Sewage is treated by aerobic bacteria action in
- (A) settling tank
  - (B) trickling filter
  - (C) oxidation pond
  - (D) All of the above ✓
60. The suitable layout of water distribution system for a well-planned city is
- (A) dead end system
  - (B) grid-iron system
  - (C) ring system ✓
  - (D) radial system
61. The estimated value of the property at the end of its life period, without being dismantled, is called as
- (A) salvage value
  - (B) book value ✓
  - (C) scrap value
  - (D) market value
62. CPM is evaluated from
- (A) Gantt chart ✓
  - (B) bar chart
  - (C) PERT chart
  - (D) None of the above

63. The polluted water is one which

- (A) contains pathogenic bacteria
- ☒ (B) consists of undesirable substances rendering it unfit for drinking and domestic use
- (C) is safe and suitable for drinking and domestic use
- (D) is contaminated

64. Two samples of water A and B have pH values of 4.4 and 6.4 respectively. How many times more acidic is sample A than sample B?

- (A) 0
- (B) 50
- (C) 100
- (D) 200 ✓

65. The trap which is provided to disconnect the house drain from the street sewer is called

- (A) interceptor chamber
- (B) intercepting trap ✓
- (C) interception manhole
- (D) interceptor chamber, manhole and trap

66. The type of formwork preferred for construction of chimneys is

- (A) wooden formwork
- (B) steel formwork
- (C) slip formwork
- ☒ (D) Any of the above

67. The method of waterproofing basement is

- (A) providing foundation drawing and DPC
- (B) providing RCC raft and wall slab
- (C) asphalt tanking
- ☒ (D) Any of the above

68. The ore from which aluminium is extracted economically is

- (A) kaolin
- (B) cryolite
- (C) corundum
- ☒ (D) bauxite

69. Concrete mix design is intended to

- (A) achieve specified characteristic strength
- ☒ (B) achieve required workability
- (C) achieve impermeability
- (D) Both (A) and (B)

70. Adhesive power is the highest in case of

- (A) asphalt
- (B) bitumen
- (C) coal tar ✓
- (D) None of the above

71. Camber of a road is provided for

- (A) counteracting the centrifugal force
- (B) effective drainage
- (C) getting better sighting distance
- (D) getting least stopping distance

72. A pavement is classified as flexible or rigid based on its

- (A) sub-grade
- (B) sub-base
- (C) base
- (D) wearing course ✓

73. The minor instrument used not only to take horizontal sight but also inclined sight is known as

- (A) clinometer ✓
- (B) sextant
- (C) Abney level
- (D) pantograph

74. In pitched roof, the term 'gable' is defined as the

- (A) apex line of the sloping roof
- (B) horizontal distance between the internal faces of the walls
- (C) ✓ triangular part of a wall formed at the end of a pitched roof
- (D) inclination of the sides of a roof to the horizontal plane

75. Standard penetration test is usually carried out to determine

- (A) consolidation of soil
- (B) strength of soil
- (C) permeability of soil ✓
- (D) plasticity of soil

76. The first stage of a construction is

- (A) preparation of estimate
- (B) survey of the site ✓
- (C) initiation of the proposal
- (D) preparation of tender



77. A foundation consisting of thick reinforced concrete slab covering the entire area of the bottom structure is known as

- (A) pile foundation ✓
- (B) pier foundation
- (C) raft foundation
- (D) machine foundation

78. A type of bond in a brick masonry in which each course consists of alternate header and stretcher is called

- (A) English bond ✓
- (B) Flemish bond
- (C) stretching bond
- (D) heading bond

79. The wedge-shaped unit of masonry forming an arch is called

- (A) extrados
- (B) intrados
- (C) crown
- (D) voussoir ✓

80. The heaviest metal is

- (A) steel
- (B) lead
- (C) tin
- (D) cast iron ✓

81. Refractory bricks resist

- (A) high temperature
- (B) chemical action
- (C) action of frost
- (D) All of the above ✓

82. The compressive strength of high duty bricks should be more than

- (A) 40 N/mm<sup>2</sup>
- (B) 20 N/mm<sup>2</sup>
- (C) 5 N/mm<sup>2</sup>
- (D) 3.5 N/mm<sup>2</sup>

83. The compound responsible for initial setting time of cement is

- (A) tricalcium aluminate
- (B) tricalcium silicate
- (C) dicalcium silicate
- (D) tetracalcium aluminoferrite

84. The cement to dry sand proportion recommended for masonry work is

- (A) 1 : 3 ✓
- (B) 1 : 6
- (C) 1 : 10
- (D) 1 : 12

85. The maximum number of steps in a flight generally should be less than
- (A) 10 ✓  
(B) 12  
(C) 15  
(D) No limit
86. A temporary structure built around a construction site to remove water and make the area reasonably dry is known as
- (A) caisson  
(B) cofferdam  
(C) well foundation  
(D) raft foundation ✓
87. The maximum size of the clay particles is about
- (A) 0.0002 mm  
(B) 0.002 mm  
(C) 0.02 mm ✓  
(D) 0.2 mm
88. The soil transported by glaciers, either by ice or water, is called
- (A) talus  
(B) loess -  
(C) drift  
(D) dune
89. A soil having particles of nearly the same size is known as
- (A) uniformly graded soil  
(B) poorly graded soil ✓  
(C) well-graded soil  
(D) coarse soil
90. If a soil sample is having porosity 50% and degree of saturation 90%, then its percentage air voids is
- (A) 4.5% ✓  
(B) 5%  
(C) 45%  
(D) 50%
91. The parameter that is important for compaction control of earthwork in highway construction is
- (A) optimum moisture content ✓  
(B) pore water pressure  
(C) bulk density  
(D) cohesion
92. The process by which a mass of saturated soil is caused by external forces to suddenly lose its shear strength and to behave as a fluid is called
- (A) piping  
(B) slide ✓  
(C) quick condition  
(D) liquefaction



93. Sheep-foot rollers are recommended for compacting
- (A) granular soil
  - (B) cohesive soil ✓
  - (C) hard rock ✗
  - (D) any type of soil
94. The inclination of escalators to horizontal is usually
- (A) 20°
  - (B) 25°
  - (C) 30° ✓
  - (D) 35°
95. As per the Indian Standards, the water consumption per capita per day for domestic purpose is
- (A) 85 litres
  - (B) 100 litres
  - (C) 115 litres
  - (D) 135 litres ✓
96. Turbidity of water is expressed in terms of
- (A) silica scale
  - (B) platinum-cobalt scale ✓
  - (C) pH scale
  - (D) None of the above
97. Fibre-reinforced plastics are manufactured by reinforcing plastic with
- (A) paper
  - (B) asbestos
  - (C) glass
  - (D) Any of the above ✓
98. In a National Highway, the minimum width of road and shoulder on each side are
- (A) 10 m and 2 m
  - (B) 8 m and 2 m ✓
  - (C) 10 m and 1.5 m
  - (D) 8 m and 1.5 m
99. The width of broad gauge is
- (A) 1676 mm ✓
  - (B) 1435 mm
  - (C) 1000 mm
  - (D) 762 mm
100. The maximum number of vehicle can be parked with
- (A) 30° parking angle
  - (B) 45° parking angle
  - (C) 90° parking angle ✓
  - (D) parallel parking