

Name of Post:	Conservation Officer (Grade-II) under Indigenous and Tribal Faith and Culture Department
Advt. No.	04/2022 dated 29.03.2022
Date of Exam.	03.11.2023

COF/ITFCD/I/23

ASKED TO DO SO

Series



00097

TEST BOOKLET
CIVIL ENGINEERING AND
GENERAL AWARENESS

Time Allowed : 2 Hours

Full Marks : 200

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 :



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 :



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.
6. No candidate shall be admitted to the Examination Hall/Room 20 minutes after the commencement of the examination.
7. **No candidate shall leave the Examination Hall/Room** without prior permission of the Supervisor/Invigilator. No candidate shall be permitted to hand over his/her Answer-Sheet and leave the Examination Hall/Room before expiry of the full time allotted for each paper.
8. No Mobile Phone, Electronic Communication Device, etc., are allowed to be carried inside the Examination Hall/Room by the candidates. Any Mobile Phone, Electronic Communication Device, etc., found in possession of the candidate inside the Examination Hall/Room, even if on off mode, shall be liable for confiscation.
9. No candidate shall have in his/her possession inside the Examination Hall/Room any book, notebook or loose paper, except his/her Admission Certificate and other connected papers permitted by the Commission.
10. Complete silence must be observed in the Examination Hall/Room. No candidate shall copy from the paper of any other candidate, or permit his/her own paper to be copied, or give, or attempt to give, or obtain, or attempt to obtain irregular assistance of any kind.
11. This Test Booklet can be carried with you after answering the questions in the prescribed Answer-Sheet.
12. Noncompliance with any of the above instructions will render a candidate liable to penalty as may be deemed fit.
13. No rough work is to be done on the OMR Answer-Sheet. You can do the rough work on the space provided in the Test Booklet.

N.B. : There will be negative marking @ 0.25 per 1 (one) mark against each wrong answer.

/99-A

[No. of Questions : 100]

SEAL

1. The major resisting force in a gravity dam is
 - (A) water pressure
 - (B) wave pressure
 - (C) self-weight of the dam
 - (D) uplift pressure

2. Superpassage is a canal cross-drainage structure in which
 - (A) natural stream water flows with the free surface below a canal
 - (B) natural stream water flows under pressure below a canal
 - (C) canal water flows with the free surface below a natural stream
 - (D) canal water flows under pressure below a natural stream

3. The purpose of canal lining is to
 - (A) control seepage
 - (B) strengthen canal section
 - (C) increase capacity of the canal
 - (D) All of the above

4. Guide banks are provided in rivers to
 - (A) increase the depth of flow in the river
 - (B) decrease the velocity of flow of the river
 - (C) confine the flow of the river within reasonable waterway
 - (D) reduce the flood peak

5. What is the maximum shear force when a cantilever beam of length l is loaded with udl w per unit length over the entire length?
 - (A) $w \times l$
 - (B) w
 - (C) $\frac{w}{l}$
 - (D) $w + l$

6. At the point of contraflexure, the value of
 - (A) bending moment is minimum
 - (B) bending moment is maximum
 - (C) bending moment and shear force both are either zero or change sign
 - (D) bending moment is either zero or changes sign

7. The CG of a semicircle of radius 10 cm lies at which of the following distances above its base?
 - (A) 2.38 cm
 - (B) 0.42 cm
 - (C) 0.23 cm
 - (D) 4.24 cm

8. Bending stress in any layer of the beam is directly proportional to the distance of the layer from
 - (A) upper layer
 - (B) bottom layer
 - (C) neutral axis
 - (D) None of the above

9. Slope and deflection are both zero in cantilever beam at the
- (A) free end
 - (B) fixed end
 - (C) centre
 - (D) None of the above
10. For a perfect frame, the relation between number of joints (j) and number of members (n) will be
- (A) $n = 2j$
 - (B) $n > 2j - 3$
 - (C) $n - 3 = 2j$
 - (D) $n = 2j - 3$
11. What is the maximum bending moment for a simply supported beam of span 10 m carrying a point load of 500 N at mid-span?
- (A) 1000 Nm
 - (B) 1250 Nm
 - (C) 5000 Nm
 - (D) 2500 Nm
12. The main function of alumina in brickearth is to
- (A) impart plasticity
 - (B) increase durability
 - (C) prevent shrinkage
 - (D) increase impermeability
13. The crushing strength of brick should **not** be less than
- (A) 7 N/mm²
 - (B) 14 N/mm²
 - (C) 3.5 N/mm²
 - (D) 10.5 N/mm²
14. Which IS code gives the grading of sand?
- (A) IS 456
 - (B) IS 383
 - (C) IS 2368
 - (D) IS 1542
15. What happens if bulking of sand is **not** accounted for while preparing concrete?
- (A) Concrete gets hardened
 - (B) Concrete is not affected
 - (C) Concrete gets softened
 - (D) Concrete becomes watery
16. The constituent of paint which keeps the ingredients of a paint in liquid suspension is
- (A) thinner
 - (B) vehicle
 - (C) base
 - (D) drier

17. The phenomenon in which water in the freshly mixed concrete rises up to the surface is called
- (A) bleeding
 - (B) segregation
 - (C) shrinkage
 - (D) creep
18. According to IS 456:2000, the grades of standard concrete are classified into
- (A) 6
 - (B) 7
 - (C) 5
 - (D) 4
19. What does grade 33 cement indicate?
- (A) Tensile strength of 33 kN/m^2
 - (B) Tensile strength of 33 N/mm^2
 - (C) Compressive strength of 33 kN/m^2
 - (D) Compressive strength of 33 N/mm^2
20. Underpinning is a method of strengthening
- (A) walls
 - (B) columns
 - (C) foundation
 - (D) beams
21. The test intended to study the resistance of aggregate to weathering action is
- (A) abrasion test
 - (B) crushing test
 - (C) impact test
 - (D) soundness test
22. Surface tension has the unit of
- (A) force per unit area
 - (B) force per unit length
 - (C) force per unit volume
 - (D) None of the above
23. The property of fluid by virtue of which it offers resistance to shear stress is called
- (A) surface tension
 - (B) adhesion
 - (C) cohesion
 - (D) viscosity
24. Differential manometer is used to measure
- (A) difference of pressure between two pipes
 - (B) difference of pressure between two points in the same pipeline
 - (C) difference of pressure head between two pipelines provided they contain the same liquid
 - (D) All of the above

25. Bernoulli's theorem deals with the principle of conservation of
- (A) energy
 - (B) momentum
 - (C) mass
 - (D) force
26. Notch is a device used for measuring
- (A) rate of flow through a small channel
 - (B) rate of flow through a pipe
 - (C) velocity through a small channel
 - (D) velocity through a pipe
27. At vena contracta, a jet has the minimum area of cross-section and so the velocity of liquid jet at this section will be
- (A) minimum
 - (B) maximum
 - (C) average
 - (D) zero
28. A pump is a device which converts
- (A) hydraulic energy into mechanical energy
 - (B) electric energy into mechanical energy
 - (C) mechanical energy into hydraulic energy
 - (D) mechanical energy to electrical energy
29. The colour of water is measured on
- (A) turbidity scale
 - (B) silical scale
 - (C) platinum-cobalt scale
 - (D) threshold scale
30. If the hardness of a sample of water expressed in p.p.m. of calcium carbonate is 60, the sample will be
- (A) hard water
 - (B) soft water
 - (C) moderately soft
 - (D) very soft
31. A structure placed in a surface water source for drawing water from this source and conveying it further to the treatment plant is called
- (A) conduit
 - (B) reservoir
 - (C) pumping
 - (D) intake
32. The process of causing heavier solid particles in suspension to settle by holding the water in a tank is called
- (A) sedimentation
 - (B) coagulation
 - (C) filtration
 - (D) disinfection

33. Disinfection of water in public supplies is done by
- (A) filtration
 - (B) passing chlorine
 - (C) ozone
 - (D) alum
34. The process used for the removal of dissolved carbon dioxide from the supply water is
- (A) coagulation
 - (B) agitation
 - (C) aeration
 - (D) sedimentation
35. Trickling filters are used to remove
- (A) suspended solids
 - (B) colloidal solids
 - (C) organic matter
 - (D) pathogenic bacteria
36. Acid rain is caused due to pollution of the atmosphere by
- (A) carbon dioxide
 - (B) methane gas
 - (C) ozone and carbon dioxide
 - (D) nitrous oxide and sulphur dioxide
37. Which of the following options is correct?
- (A) Septic tank is highly aerobic tank
 - (B) In a septic tank, sedimentation and digestion take place in the same chamber
 - (C) In a septic tank, sedimentation and digestion take place in the different chambers
 - (D) None of the above
38. The ultimate bearing capacity of a purely cohesive soil for a rough based footing is
- (A) $5.7c + \gamma D$
 - (B) $5.14c$
 - (C) $5.14c + \gamma D$
 - (D) $5.7c$
39. Which of the following does **not** happen when compaction is done?
- (A) Permeability decreases
 - (B) Density increases
 - (C) Shear strength decreases
 - (D) Compressibility decreases
40. A fine-grained soil has liquid limit 60% and plastic limit 20%. According to IS classification, the soil is represented by which of the following letter symbols?
- (A) CL
 - (B) CH
 - (C) CL-ML
 - (D) CI

41. The ultimate bearing capacity increases with the increase in the
- depth of footing
 - width of footing
 - Both depth and width of footing
 - None of the above
42. A plate load test is useful to determine
- bearing capacity of foundation
 - settlement of foundation
 - both bearing capacity and settlement of foundation
 - load on the foundation
43. Which of the following relations is **not** correct?
- $\gamma = G\gamma_w \left(\frac{1+w}{1+e} \right)$
 - $\gamma_{\text{sat}} = \gamma_w \left(\frac{G-e}{1+e} \right)$
 - $\gamma_{\text{sub}} = \gamma_w \left(\frac{G-1}{1+e} \right)$
 - $\gamma_d = \frac{G\gamma_w}{1+e}$
44. A soil sample is having a specific gravity of 2.60 and void ratio of 0.78. The water content in percentage required to fully saturate the soil at that void ratio would be
- 20
 - 30
 - 40
 - 60
45. The shear strength of cohesionless soil is due to
- internal friction
 - cohesion
 - intergranular friction
 - interparticle force
46. Prestressing can eliminate
- compressive stress
 - bearing stress
 - shear stress
 - tensile stress
47. Shear reinforcement is provided to resist
- diagonal compression
 - diagonal bending
 - diagonal tension
 - diagonal shear

48. The percentage of minimum reinforcement of the total cross-sectional area in slab using high strength deformed bar is
- (A) 0.10%
 (B) 0.12%
 (C) 0.15%
 (D) 0.20%
49. The limits of percentage of longitudinal reinforcement in a column are
- (A) 0.12% to 2%
 (B) 0.15% to 3%
 (C) 0.8% to 6%
 (D) 0.8% to 8%
50. In a singly reinforced beam, if the permissible stress in concrete reaches earlier than that in steel, the beam section is called
- (A) underreinforced section
 (B) overreinforced section
 (C) balanced section
 (D) critical section
51. As per IS 456 : 2000, the thickness of footing at the edge on soil shall **not** be less than
- (A) 12 cm
 (B) 15 cm
 (C) 30 cm
 (D) 20 cm
52. Distribution reinforcement in one-way slab is provided
- (A) to distribute the concentrated load
 (B) to protect against shrinkage and temperature stress
 (C) to keep the main steel bar in position
 (D) All of the above
53. What is the minimum eccentricity of the axial load for the column?
- (A) 15 mm
 (B) 12 mm
 (C) 10 mm
 (D) 20 mm
54. As per IRC recommendation, the camber on high-type bituminous surfacing or cement concrete road is
- (A) 1 in 33 to 1 in 25
 (B) 1 in 40 to 1 in 33
 (C) 1 in 60 to 1 in 50
 (D) 1 in 50 to 1 in 40
55. The maximum permissible super-elevation recommended by IRC for roads in plain and rolling areas is
- (A) 0.04
 (B) 0.05
 (C) 0.07
 (D) 0.10

56. The flexible pavement thickness is determined from which of the following tests?
- (A) Plate load test
 - (B) CBR test
 - (C) Standard penetration test
 - (D) Softening point test
57. Traffic sign 'overtaking prohibited' is a/an
- (A) cautionary sign
 - (B) warning sign
 - (C) mandatory sign
 - (D) informatory sign
58. Extra width is provided on horizontal curves whose radius is
- (A) less than 400 m
 - (B) less than 300 m
 - (C) more than 400 m
 - (D) more than 300 m
59. Which of the following is **not** a method of levelling?
- (A) Spirit levelling
 - (B) Traverse levelling
 - (C) Barometric levelling
 - (D) Trigonometric levelling
60. In which of the following types of surveying, only linear measurements are made?
- (A) Dumpy level
 - (B) Theodolite surveying
 - (C) Chain surveying
 - (D) Contouring
61. What is the value of back bearing of the line AB when the fore bearing of the line is 85 degree 30 minutes?
- (A) 265 degree 30 minutes
 - (B) 95 degree 30 minutes
 - (C) 240 degree 30 minutes
 - (D) 300 degree 30 minutes
62. In levelling, a station is a point where
- (A) benchmark is marked
 - (B) instrument is set up
 - (C) staff is placed
 - (D) None of the above
63. The instrument used for accurate centring in plane table survey is
- (A) spirit level
 - (B) alidade
 - (C) plumbing fork
 - (D) compass

64. Total station is an equipment in surveying for
- (A) measuring vertical angles
 - (B) measuring horizontal angles
 - (C) measuring sloping distance of object to the instrument
 - (D) All of the above
65. For measuring distances in steep and broken ground, deep ravines, the suitable method of surveying is
- (A) plane table surveying
 - (B) tacheometric surveying
 - (C) compass surveying
 - (D) chain surveying
66. The built-up covered area of a building measured at floor level of any storey is
- (A) covered area
 - (B) carpet area
 - (C) total area
 - (D) plinth area
67. _____ refers to the effect produced by deriving the maximum benefits from the minimum dimensions of a room.
- (A) Compactness
 - (B) Grouping
 - (C) Privacy
 - (D) Roominess
68. According to the recommendation of IS 13920 : 1993, the thickness of any part of the shear wall should **not** be less than
- (A) 50 mm
 - (B) 100 mm
 - (C) 150 mm
 - (D) 200 mm
69. In an external beam, column joint bars with diameter d_b and development length in tension L_d , should be provided with anchorage length beyond the inner face of the column
- (A) $L_d + d_b$
 - (B) $L_d + 10 d_b$
 - (C) $L_d - 10 d_b$
 - (D) $L_d - d_b$
70. Retrofitting of building is done by
- (A) adding shear walls
 - (B) adding steel bracing
 - (C) jacketing the column and beam
 - (D) All of the above
71. Wind loads on structures are given in
- (A) IS 875 (Part-I)
 - (B) IS 875 (Part-II)
 - (C) IS 875 (Part-III)
 - (D) IS 875 (Part-IV)

- 72.** The design tensile strength of a steel plate due to rupture of critical section is
- (A) $0.8 A_n f_u / \gamma_{m1}$
 (B) $0.9 A_n f_u / \gamma_{m1}$
 (C) $0.8 A_n f_y / \gamma_{m0}$
 (D) $0.9 A_n f_y / \gamma_{m0}$
- 73.** The minimum pitch for an M16 bolt of grade 4.6 is
- (A) 27 mm
 (B) 18 mm
 (C) 40 mm
 (D) 50 mm
- 74.** Which of the following is a serviceability criteria?
- (A) Stability against overturning
 (B) Durability consideration
 (C) Fatigue
 (D) Sway stability
- 75.** The partial safety factor for material governed by buckling is
- (A) 1.0
 (B) 1.10
 (C) 1.15
 (D) 1.25
- 76.** A beam section is selected and provided on the basis of
- (A) section modulus
 (B) net sectional area
 (C) slenderness ratio
 (D) shear
- 77.** The most accurate method of calculating quantity of earthwork is
- (A) prismatic formula method
 (B) mid-sectional area method
 (C) mean sectional area method
 (D) average depth method
- 78.** The expected out-turn of a mason in half-brick wall in partition is
- (A) 1.5 m^2
 (B) 2.5 m^2
 (C) 5.0 m^2
 (D) 1.25 m^2
- 79.** In GI sheet roofing, the minimum overlap should be provided in lengthwise direction is
- (A) 15 cm
 (B) 25 cm
 (C) 10 cm
 (D) 30 cm
- 80.** The lift more than 3.6 m and less than 6 m is converted into horizontal lead by
- (A) multiplying by 10
 (B) squaring the lift and then multiplying by 3.3
 (C) multiplying by 20
 (D) multiplying by 15

81. Where, in Assam, is India's first 99.999% pure Green Hydrogen Pilot Plant commissioned by Oil India Ltd. on 20th April, 2022?

(A) Jorhat

(B) Tezpur

(C) Duliajan

(D) Digboi

82. On 13th January, 2023, the Prime Minister Narendra Modi flagged off the MV Ganga Vilas Cruise, the world's longest river cruise passing through 27 rivers, across the States in two countries, starting the epic journey from Varanasi and ending at Dibrugarh via Dhaka.

What was the distance covered by the MV Ganga Vilas?

(A) 2500 km

(B) 1600 km

(C) 3200 km

(D) 4100 km

83. Which town in Uttarakhand is facing a major challenge due to severe land subsidences and cracks appearing on its roads, houses and fields, posing a grave danger to its very existence?

(A) Nainital

(B) Joshimath

(C) Ranikhet

(D) Dehradun

84. Which Indian athlete set a new national record in the 100 metres dash by clocking 10.25 seconds at a tournament in August 2022?

(A) Amiya Kumar Mallick

(B) Gurindervir Singh

(C) Amlan Borgohain

(D) Abdul Najeeb Qureshi

85. Which Indian city was awarded for being the cleanest city as per the Swachh Survekshan Survey of 2022?

(A) Indore

(B) Surat

(C) Pune

(D) Nagpur

- 86.** Name the winner of the Booker Prize, 2022.
- (A) Geetanjali Shree
 (B) Annie Ernaux
 (C) Percival Everett
 (D) Shehan Karunatilaka
- 87.** At a Cabinet decision on 23rd January, 2023, the Government of Assam has decided to undertake a multipronged strategy to crack down on child marriages. As part of the decision, which category of officers are designated as Child Marriage Prohibition Officers (CMPO)?
- (A) BDO
 (B) Circle Officer
 (C) Estension Officer, Panchayat
 (D) Gaon Panchayat Secretary
- 88.** Who amongst the following was conferred with the highest civilian award of the State, Assam Baibhav for 2022?
- (A) Dr. Tapan Saikia
 (B) Dr. Binoy Kumar Saikia
 (C) Dr. Sashidhar Phukan
 (D) Dr. Pankaj Lal Gogoi
- 89.** Which State in India was the first to start a delivery service deploying drones to transport animal vaccines to its remote areas?
- (A) Assam
 (B) Arunachal Pradesh
 (C) Sikkim
 (D) Mizoram
- 90.** Which of the following countries' President was the Chief Guest at the Republic Day celebration in New Delhi in 2023?
- (A) Ghana
 (B) Egypt
 (C) Qatar
 (D) Mexico
- 91.** Which State launched the Vidya Rath-School on Wheels in August 2022 to provide elementary education for poor, underprivileged children?
- (A) West Bengal
 (B) Bihar
 (C) Assam
 (D) Tripura

92. At the XXII Commonwealth Games held in Birmingham, England from 28th July, 2022 to 8th August, 2022, what was India's position in the overall Medal Tally amongst the 72 participating teams?
- (A) 4th
(B) 5th
(C) 3rd
(D) 7th
93. In January 2023, the Government of India has decided to nominate the Royal Burial sites on Moidams of Charaideo for the UNESCO World Heritage Status recognition in the cultural category. How many Moidams are located in Charaideo for recognition as a World Heritage Site?
- (A) 75
(B) 90
(C) 126
(D) 219
94. Which State has declared 'Dahi-Handi', an event associated with Krishna Janmashtami where teams make a human pyramid and attempt to break a pot of curd kept at a tall height as an official sport of the State on 18th August, 2022?
- (A) Uttar Pradesh
(B) Gujarat
(C) Rajasthan
(D) Maharashtra
95. Based on a proposal by India and supported by 72 nations, the United Nations declared 2023 as the International Year of which food crop?
- (A) Millet
(B) Maize
(C) Wheat
(D) Rice
96. Consider the following statements on Mission Amrit Sarovar :
- I. Mission Amrit Sarovar was launched on 24th April, 2022 with a target to construct or rejuvenate 50000 ponds across India.
- II. The Mission covers all States and Union Territories except Delhi, Chandigarh and Lakshadweep.
- III. A separate budget is earmarked for the Mission.
- IV. The likely date of completion of Mission Amrit Sarovar is 15th August, 2023.
- Which of the above statement/statements is/are **not** correct?
- (A) All are correct
(B) III is not correct
(C) III and IV are not correct
(D) II, III and IV are not correct

97. Who is the recipient of 52nd Dadasaheb Phalke Award for exemplary lifetime contribution to Indian cinema?

- (A) Waheeda Rehman
- (B) Hema Malini
- (C) Asha Parekh
- (D) Mala Sinha

98. Consider the following facts about the G-20 :

- I. The Group of Twenty (G-20) was founded in 1999 as a forum for the Finance Ministers and Central Bank Governors of the member countries to discuss global economic and financial issues.
- II. The G-20 was elevated to the level of Heads of State Governments in the wake of the economic crisis of 2007.
- III. India holds the Presidency of the G-20 from 1st December, 2022 to 30th November, 2023.
- IV. The G-20 comprises 20 countries. The European Union is not part of the G-20.

Which of the above fact/facts is/are **not** correct?

- (A) I and IV are not correct
- (B) IV is not correct
- (C) I, II and IV are not correct
- (D) All of the above facts are correct

99. In which State did Prime Minister Narendra Modi inaugurate India's first Earthquake Memorial and Museum?

- (A) Gujarat
- (B) Uttarakhand
- (C) Haryana
- (D) Bihar

100. Consider the following facts about the eminent poet and Jnanpith awardee Nilmani Phukan who passed away on 19th January, 2023 :

- I. Nilmani Phukan is the third Assamese to be awarded with the Jnanpith Award.
- II. He was conferred with the Sahitya Akademi Award in Assamese in 1981 for his poetry collection, *Kavita*.
- III. He was conferred with the Padma Shri by the Government of India in 1990.
- IV. He was popularly known as 'Bagmibor'.

Which of the above fact/facts is/are **not** correct?

- (A) III and IV are not correct
- (B) III is not correct
- (C) I and III are not correct
- (D) IV is not correct

SPACE FOR ROUGH WORK

SEAL

COF/ITFCD/I/23/99-A

16

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