

MIZORAM PUBLIC SERVICE COMMISSION

GENERAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF JUNIOR ENGINEER UNDER IRRIGATION & WATER RESOURCES DEPARTMENT OCTOBER, 2018

CIVIL ENGINEERING PAPER-II

Time Allowed : 2 hours

Full Marks : 150

*All questions carry equal marks of 2 each.
Attempt all questions.*

1. In the analysis of rates, contractor profit is generally provided at the rate of
 - (a) 7.50 %
 - (b) 9.00 %
 - (c) 10.00 %
 - (d) 12.50 %
2. The analysis of rates is usually work out for the unit of payment of the particular item of work under the head
 - (a) Material
 - (b) Labour
 - (c) Transportation
 - (d) Both (a) & (b)
3. Unit of measurement for earth work is
 - (a) Sqm
 - (b) Rm
 - (c) Cum
 - (d) Sqft
4. Unit of measurement for plastering is
 - (a) Sqm
 - (b) Rm
 - (c) Cum
 - (d) Sqft
5. The weight of reinforcing bar 16mm dia is
 - (a) 0.89 kg / rm
 - (b) 1.24 kg / rm
 - (c) 1.58 kg / rm
 - (d) 1.68 kg / rm
6. In centre line method of estimate, to get the quantity of earthwork in excavation, the total length is multiplied by
 - (a) The breadth
 - (b) The depth
 - (c) The breadth and the depth
 - (d) None of these
7. Salvage value is
 - (a) The value of dismantled material
 - (b) The value at the end of the utility period without being dismantled
 - (c) Both (a) & (b)
 - (d) The value of existing material at present
8. The cost of building at present market rate (P) = Rs. 10.00 lakh
The fixed percentage of depreciation (rd) = 2.00
The age of the building (n) = 10 yrs
The depreciated value of the building (D) is
 - (a) Rs. 7.45 lakh
 - (b) Rs. 8.00 lakh
 - (c) Rs. 8.17 lakh
 - (d) Rs. 8.77 lakh

9. The fund which is gradually accumulated by way of periodic on annual deposit for the replacement of the building or structure at the end of its useful life is termed as
- (a) Maintenance fund (b) Replacement fund
(c) Additional fund (d) Sinking fund
10. Number of brick required for 1 cum of brick work is
- (a) 400 nos (b) 450 nos
(c) 500 nos (d) 550 nos
11. For a concrete slab of dimension 4.50 m length, 4.00 m width and 125 mm thick, what will be the requirement of steel for 10mm diameter bar taking coefficient of steel @ 100 kg/cum
- (a) 2.00 qntls (b) 2.20 qntls
(c) 2.25 qntls (d) 2.35 qntls
12. Provision of DADO will be made in the estimate under the item of
- (a) RCC work (b) Ceiling work
(c) Walling work (d) Flooring work
13. Unit of measurement for 1st class local wood work dressed in frames of sill, upright, batten, post, beam etc. is
- (a) Sqm (b) Cum
(c) Rm (d) Qntls
14. Requirement of cement for 1 cum of M15 Concrete (1:2:4) with 20mm nominal size aggregate is
- (a) 300 kg (b) 320 kg
(c) 350 kg (d) 400 kg
15. Requirement of sand for 1 cum of M15 Concrete (1:2:4) with 20mm nominal size aggregate is
- (a) 0.40 cum (b) 0.42 cum
(c) 0.445 cum (d) 0.45 cum
16. Which of the following scale is largest
- (a) 1 cm = 50 m (b) 1 : 42000
(c) 1 : 4500 (d) 1 cm = 50 km
17. 'Offset' are
- (a) Short measurement from chain line
(b) Ties or check lines which are perpendicular to chain line
(c) Sets of minor instruments in chain surveying
(d) Chain line which go out of alignment
18. In the prismatic compass
- (a) The magnetic needle moves with the box
(b) The line of the sight does not move with the box
(c) The magnetic needle and graduated circle do not move with the box
(d) The graduated circle is fixed to the box and the magnetic needle always remain in the N-S direction
19. Theodolite is an instrument used for
- (a) Measurement of angular difference
(b) Measurement of horizontal angles only
(c) Measurement of vertical angles only
(d) Measurement of horizontal and vertical angles

20. If the R.L of an B.M is 100.00 m, the backsight is 1.215 m and the foresight is 1.870 m, the R.L of the forward station is
- (a) 99.345 m (b) 100.345 m
(c) 100.655 m (d) 101.870 m
21. Refractive correction
- (a) Completely eliminate curvature correction (b) Partially eliminate curvature correction
(c) Adds to the curvature correction (d) Has no effect on curvature correction
22. Dumpy level is most suitable when
- (a) The instrument is to be shifted frequently
(b) Fly levelling is being done over long distance
(c) Many reading are to be taken from a single setting of the instrument
(d) All of these
23. A series of closely spaced contour lines represent a
- (a) Steep slope (b) Gentle slope
(c) Uniform slope (d) Plane surface
24. Camber in the road is provided for
- (a) Counteracting the centrifugal force (b) Having proper sight distance
(c) Both (a) & (b) (d) Effective drainage
25. Bitumen of grade 80/100 means
- (a) Its penetration value is 8 mm (b) Its penetration value is 10 mm
(c) Its penetration value is 8 to 10 mm (d) Its penetration value is 8 to 10 cm
26. The purpose of the wearing course is
- (a) To improve the load supporting capacity
(b) To give a smooth riding surface
(c) To receive the load on the pavement for dispersion to the earth mass
(d) To provide a stress transmitting medium to spread the surface wheel load
27. Flexible pavement distribute the wheel load
- (a) Directly to sub-grade (b) Through structural action
(c) Through a set of layers to the sub-grade (d) None of these
28. The function of an expansion joint in rigid pavement is to
- (a) Relieve warping stresses (b) Relieve shrinkage stresses
(c) Resist stresses due to expansion (d) Allow free expansion
29. Traffic density is
- (a) The number of vehicle occupying a unit length of lane of roadway at a given instant
(b) The ability of roadway to accommodate traffic volume
(c) The number of vehicle moving i a specified direction on a given lane or roadway at a given point at a specified time
(d) The maximum number of passenger cars that can pass a given point on a lane or roadway during one hour
30. The maximum limit of water absorption for aggregate suitable for road construction is
- (a) 0.40 % (b) 0.60 %
(c) 0.80 % (d) 1.00 %

31. In water treatment, rapid gravity filter are adapted to remove
(a) Dissolved organic substances (b) Dissolved solid and dissolved gases
(c) Floating solids and dissolved ingredients solids (d) Bacteria and colloidal solids
32. The treatment of water with bleaching powder is known as
(a) Pre-chlorination (b) Super chlorination
(c) De chlorination (d) Hypo chlorination
33. Sewerage system is usually designed for
(a) 10 years (b) 20 years
(c) 25 years (d) 50 years
34. The gas from sludge digestion tank is mainly composed of
(a) Nitrogen (b) Carbon dioxide
(c) Hydrogen sulphide (d) Methane
35. Average rate of water consumption per head per day as per Indian standard is
(a) 100 ltrs (b) 135 ltrs
(c) 165 ltrs (d) 200 ltrs
36. Septic tank is
(i) Setting tank
(ii) Digestive tank
(iii) Aeration tank
The correct answer is
(a) Only (i) (b) (i) & (ii)
(c) (i) & (iii) (d) Only (iii)
37. The means of access for inspection and cleaning of sewer line is known as
(a) Inlet (b) Drop manhole
(c) Catch basin (d) Manhole
38. Which of the following is not a water borne disease
(a) Dysentery (b) Cholera
(c) Typhoid (d) Malaria
39. Which of the following causes a decrease in per capita consumption
(a) Use of metering system (b) Good quality of water
(c) Better standard of living of the people (d) Cooler climate
40. The pipe which is used to carry the discharge from sanitary fittings like bathroom, kitchen etc., is called
(a) Anti siphonage pipe (b) Vent pipe
(c) Soil pipe (d) Waste pipe
41. The capacity of a smallest pressed tank is
(a) 1000 ltrs (b) 1650 ltrs
(c) 1950 ltrs (d) 2450 ltrs
42. Steel tank are mainly designed for
(a) Weight of the tank (b) Wind pressure
(c) Earthquake force (d) Water pressure

43. A compression member which may be oriented in any direction and has significant bending is called a
- (a) Column (b) Strut
(c) Beam (d) Tie
44. Slenderness ratio is a function of the
- (a) Effective length (b) Radius of gyration
(c) Allowable stress (d) Effective length and radius of gyration
45. In welding, the temperature required for fusion is around
- (a) 1200 to 1250 degree (b) 1450 to 1500 degree
(c) 1500 to 1550 degree (d) 1600 to 1700 degree
46. The throat depth for 45° filled weld is $0.707 'a'$, where 'a' is
- (a) Size of the weld (b) Length of the weld
(c) Size of the fillet (d) Plate thickness
47. A butt weld is specified by
- (a) Plate thickness (b) Size of weld
(c) Penetration thickness (d) Effective throat thickness
48. Bolts are most suitable to carry
- (a) Shear (b) Bending
(c) Axial tension (d) Shear and bending
49. When the axis of load lies in the plane of rivet group, then the rivets are subjected to
- (a) Only shear stresses (b) Only tensile stresses
(c) Both (a) & (b) (d) Only bending stresses
50. The heaviest I-section for same depth is
- (a) ISMB (b) ISLB
(c) ISHB (d) ISWB
51. Efficiency of a riveted joint, having the minimum pitch as per IS:800 is
- (a) 40 % (b) 50%
(c) 60 % (d) 70%
52. The slenderness ration of lacing bars should not exceeds
- (a) 100 (b) 120
(c) 130 (d) 145
53. Rapid cooling of the steel destroyed the crystalline structure and introduces
- (a) Porosity in the joint (b) Tendency to corrosion
(c) Brittleness (d) Both (b) & (c)
54. Diameter of a bolt hole is usually taken as
- (a) Gross diameter of bolt (b) Nominal diameter + 1.5 mm
(c) Nominal diameter + 2.0 mm (d) Nominal diameter of bolt
55. Minimum pitch of the rivets shall not be less than
- (a) 1.5 d (b) 2.0 d
(c) 2.5 d (d) 3.0 d

56. The Administrative ministry / Department has to accord necessary sanction before execution of work as below
- (a) Administrative approval (b) Expenditure sanction
(c) Technical sanction (d) Both (a) & (b)
57. The provision of contingencies is made in the estimate for cost upto Rs. 1.00 crore as per CPWD works manual
- (a) 3% (b) 4%
(c) 5% (d) 6%
58. A sum of 10% of the gross amount of the bill shall be deducted from each running bill of the contractor as
- (a) Earnest money (b) Security deposit
(c) Performance guarantee (d) None of these
59. In case of work at headquarters of the Sub-Division, SDO should check the measurement recorded by his Junior Engineer not less than
- (a) 30 % (b) 40 %
(c) 50 % (d) 60 %
60. When a Measurement book is lost
- (a) FIR should be lodged with the police
(b) It should be reported immediately to SDO concerned
(c) It should be reported immediately to EE concerned
(d) It should be reported immediately to Chief Engineer concerned
61. Payment made to the contractor for the materials brought to site which are to be used on work is called
- (a) Advance bill (b) Material advance
(c) Mobilization advance (d) Secured advance
62. Penalty given to contractor on delay of work is
- (a) Termination of contract (b) Liquidated damages
(c) Withheld of bill (d) Extension of time
63. In the process of contract, acceptance of an offer made by the other person is called the
- (a) Promisor (b) Contractor
(c) Employer (d) Promisee
64. An agreement which is enforceable by law is called
- (a) Special agreement (b) Contract
(c) Lumpsum contract (d) Work order
65. The following sanction will be obtained for execution of work in order as below
- (i) Administrative approval
(ii) Technical Sanction
(iii) Expenditure sanction
- The correct sequence is
- (a) (i) – (ii) – (iii) (b) (i) – (iii) – (ii)
(c) (iii) – (ii) – (i) (d) (iii) – (i) – (ii)

Directions (Question Nos. 66 & 67): Find the correct answer

66. 10, 25, 45, 54, 60, 75, 80

- (a) 54 (b) 10
(c) 75 (d) 25

67. 3, 7, 6, 5, 9, 12, 1, 15, (...)

- (a) -1 (b) 18
(c) 3 (d) 13

Directions (Question No. 68): Choose the word which best expresses the meaning of the given word

68. AUGUST

- (a) Common (b) Petty
(c) Ridiculous (d) Dignified

Directions (Question No. 69): Pick out the most effective word(s) from the given words to fill in the blank to make the sentence meaningfully complete.

69. Hardly had he arrived _____ it started raining

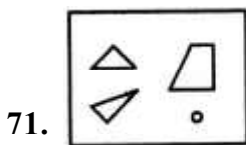
- (a) after (b) than
(c) when (d) before

Directions (Question No. 70): Which of phrases given below each sentence should replace the phrase printed in bold type to make the grammatically correct? If the sentence is correct as it is, mark 'D' as the answer.

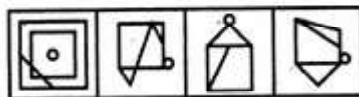
70. They **were all shocked at** his failure in the competition

- (a) had all shocked at (b) were shocked at all
(c) had all shocked by (d) no correction required

Directions (Question Nos. 71 & 72): Find out which of the figures in (1),(2),(3),(4) can be formed from the pieces given in figure (X)

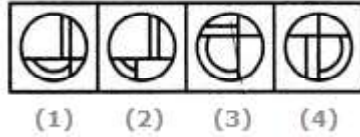
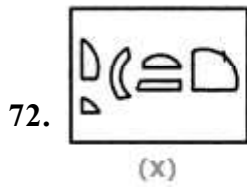


(X)



(1) (2) (3) (4)

- (a) 1 (b) 2
(c) 3 (d) 4



- (a) 1 (b) 2
(c) 3 (d) 4

73. If $3*6=18$, $5*3=16$, $8*2=20$. Find the value of $4*6=?$

- (a) 12 (b) 13
(c) 33 (d) 20

74. Monday: April::Friday:?

- (a) August (b) Saturday
(c) July (d) Tuesday

Directions (Question No. 75): Find the odd man out:

75. 3, 5, 11, 14, 17, 21

- (a) 3 (b) 17
(c) 14 (d) 21

* * * * *