

# MIZORAM PUBLIC SERVICE COMMISSION

## TECHNICAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO JUNIOR ENGINEER (JE) CONTRACT BASIS UNDER RURAL DEVELOPMENT DEPARTMENT, NOVEMBER, 2016.

### CIVIL ENGINEERING PAPER - II

Time Allowed : 2 hours

Full Marks : 150

*All questions carry equal marks of 2 each.*

*Attempt all questions*

1. The most reliable estimate is
  - (a) Plinth area estimate
  - (b) Preliminary estimate
  - (c) Detailed estimate
  - (d) None of these
2. Due to change in price level, revised estimate is prepared if the sanctioned estimate exceeds
  - (a) 4%
  - (b) 5%
  - (c) 8%
  - (d) 10%
3. The brick work is not measured in cum. in case of
  - (a) One or more than one brick thick wall
  - (b) Brick work is an arch
  - (c) Reinforced brick work
  - (d) Half brick work
4. The order of booking dimension is
  - (a) Length, breadth, height
  - (b) Breadth, height, length
  - (c) Length, height, breadth
  - (d) Height, breadth, length
5. The rate of item of work depends on
  - (a) Specification of work
  - (b) Specification of materials
  - (c) Method of construction
  - (d) All of these
6. The expected out turn of half brick partition wall per mason per day is
  - (a) 2.00 m<sup>2</sup>
  - (b) 3.00m<sup>2</sup>
  - (c) 4.00 m<sup>2</sup>
  - (d) 5.00m<sup>2</sup>
7. The expected out turn for earth work in excavation in ordinary soil per mazdoor per day is
  - (a) 1.00 cum.
  - (b) 2.00 cum.
  - (c) 3.00 cum.
  - (d) 4.00 cum.
8. Earth work in formation cutting is measured in
  - (a) Cum.
  - (b) Rm.
  - (c) Sqm.
  - (d) Feet
9. In a cement concrete road of 1000m long, 8 m wide and 15 cm thick, the cubic content of concrete (1:2:4) is
  - (a) 800 cum.
  - (b) 900 cum.
  - (c) 1100 cum.
  - (d) 1200 cum.

- 10.** Plaster work is measured in
- (a) Cum. (b) Sqm.  
(c) Rm. (d) None of these
- 11.** Brick required for one cum of Brick Masonry is
- (a) 400 Nos. (b) 450 Nos.  
(c) 500 Nos. (d) 550 Nos.
- 12.** In Concrete work, item shall be measured in cubic meter and no deduction shall be made for
- (a) Opening up to 0.10 sq. m.  
(b) Volume occupied by reinforcement  
(c) Small voids not exceeding 40 sq.cm each in cross section  
(d) All of these
- 13.** For making detailed estimate of the building the following method can be used
- (a) Long and short wall method (b) Centre line method  
(c) Crossing method (d) All of these
- 14.** One 50 kg. bag of cement is equal to
- (a) 0.0452 cum. (b) 0.0411 cum.  
(c) 0.0347 cum (d) None of these
- 15.** In cement concrete 1:2:4, the dry volume of the mix per cubic meter of finish concrete varies from
- (a) 1.37cum. to 1.39 cum. (b) 1.45 cum. to 1.47 cum.  
(c) 1.51 cum. to 1.55 cum. (d) 1.54 cum. to 1.57 cum.
- 16.** Surveying Metric Chains are available in length of:
- (a) 15m and 30m (b) 20m and 30m  
(c) 10m and 20m (d) 30m and 50m
- 17.** One Chain link measures:
- (a) 30cm (b) 20cm  
(c) 15cm (d) 10cm
- 18.** The horizontal angle between the meridian and the survey line, measured in clockwise direction is
- (a) Measured angle (b) Magnetic deflection  
(c) Clockwise curve (d) Bearing
- 19.** Bearings are designated in two system
- (a) North and south bearings (b) Whole Circle and Reduced Bearings  
(c) Clockwise and anti-clockwise bearings (d) Forward and back bearings
- 20.** Imaginary line on the ground joining points of equal elevation is called;
- (a) Contour line (b) Level line  
(c) Contour interval (d) Both (a) & (b)
- 21.** An instrument used for measuring horizontal and vertical angles accurate is called
- (a) Dumpy level (b) Theodolite  
(c) Compass (d) Both (a) & (b)

- 22.** In Water bound macadam roads, binding material is
- (a) Sand (b) Soil  
(c) Stone dust (d) Brick dust
- 23.** The pavement width of road is depends upon
- (a) Terrain (b) Types of traffic  
(c) Nos. of lanes (d) Formation width
- 24.** On earthen roads, camber should preferably be
- (a) 1 in 20 to 1 in 24 (b) 1 in 20 to 1 in 30  
(c) 1 in 30 to 1 in 40 (d) 1 in 10 to 1 in 15
- 25.** Raising outer edge of the road with respect to inner edge on curve is known as
- (a) Cant (b) Banking  
(c) Super elevation (d) All of these
- 26.** The maximum super-elevation recommended by IRC 52 – 2001 for mountainous terrain (not bound by snow)
- (a) 7% (b) 8%  
(c) 9% (d) 10%
- 27.** As per IRC-52-2001 the desirable road land width for National & State highway in open area is
- (a) 18.00 m (b) 20.00 m  
(c) 24.00 m (d) 30.00 m
- 28.** The ruling design speed for steep terrain State highway is
- (a) 30 Km/hr. (b) 40 Km/hr.  
(c) 50 Km/hr. (d) 60 Km/hr.
- 29.** As per IRC 52-2001 ruling gradient for mountainous terrain is
- (a) 5% (b) 6%  
(c) 7% (d) 8%
- 30.** The full form of DBM is
- (a) Double bituminous macadam (b) Dry Bituminous macadam  
(c) Dense bituminous macadam (d) None of these
- 31.** The domestic water demand per day per capita is
- (a) 135 litres (b) 125 litres  
(c) 110 litres (d) 140 litres
- 32.** Ph value for domestic water supply should be
- (a) 5.0 to 7.0 (b) 6.5 to 8.5  
(c) 6.5 to 9 (d) 10.0 to 15.0
- 33.** Water having Ph value less than 7 indicates
- (a) Acidic (b) Alkaline  
(c) Odour (d) Bacterial

34. Sewer manholes are generally provided at  
(a) the change of gradient (b) the change of direction  
(c) the junction of sewer (d) all of these
35. For the survival of fish in a river stream, the minimum dissolved oxygen is prescribed  
(a) 3 PPM (b) 4 PPM  
(c) 5 PPM (d) 6 PPM
36. The depletion of Ozone layer in the outer atmosphere may cause  
(a) Lung cancer (b) Bronchitis  
(c) Skin cancer (d) Heart disorder
37. Which one of the following gases is most significant as air pollutant  
(a) Carbondioxide (b) Oxygen  
(c) Nitrogen (d) Sulphurdioxide
38. The most dangerous pollutant in vehicular emissions is  
(a) CO (b) SO<sup>2</sup>  
(c) CO<sup>2</sup> (d) O<sub>3</sub>
39. The sludge does not contain waste water from  
(a) Bath rooms (b) Wash basins  
(c) Kitchen sinks (d) Toilets
40. The standard B.O.D. (Bio-Chemical Oxygen Demand) of water is taken for  
(a) 1 day (b) 2 days  
(c) 3 days (d) 5 days
41. When the plates to be connected by over lapping each other and joined with rivets it is called  
(a) Butt Joint (b) Rivet joint  
(c) Lap joint (d) None of these
42. If the thickness of a structural member is small as compared to its length and width, it is classified as  
(a) one dimensional (b) two dimensional  
(c) three dimensional (d) none of these
43. With a percentage increase of carbon in steel, decreases its  
(a) strength (b) hardness  
(c) brittleness (d) ductility
44. Live load  
(a) varies in magnitude (b) varies in position  
(c) is expressed as uniformly distributed load (d) all of these
45. The permissible stress to which a structural member can be subjected to is known as  
(a) Bearing stress (b) Tensile stress  
(c) Working stress (d) Compressive stress
46. The ration of longitudinal stress to strain within elastic limit is known as  
(a) Tangent modulus of elasticity (b) Bulk modulus of elasticity  
(c) Shear modulus of elasticity (d) Modulus of elasticity

47. Poisson's ratio for steel within elastic limit, ranges from  
(a) 0.15 to 0.20 (b) 0.25 to 0.27  
(c) 0.25 to 0.33 (d) 0.30 to 0.33
48. The rivets which are heated and then driven in the field, are known as  
(a) Power driven shop rivets (b) Power driven field rivets  
(c) Hand driven rivets (d) Cold driven rivets
49. Diameter of rivet hole is made larger than the diameter of the rivets by  
(a) 1 mm for rivet diameter up to 12mm. (b) 1.5 mm for rivet diameter exceeding 25mm.  
(c) 2.0 mm for rivet diameter over 25mm. (d) none of these
50. An imaginary line along which rivets are placed, is known as  
(a) rivet line (b) back line  
(c) gauge line (d) all the above
51. When two plates are placed end to end and are joined by two cover plates, the joint is known as  
(a) lap joint (b) butt joint  
(c) chain rivet lap joint (d) double cover butt joint
52. Choose the incorrect names of welding joint  
(a) Square Butt (b) Single V-Butt  
(c) Double V-Butt (d) Double J-Butt
53. The distance between c.g. of compression and c.g. of tension flanges of a plate girder is known as  
(a) Overall depth (b) Effective depth  
(c) Clear depth (d) Actual depth
54. On a steel structures the dead load is the the weight of  
(a) Steel works (b) Material fastened to steel work  
(c) Material supported permanently (d) All the above
55. The slenderness ration of a column is zero when its length  
(a) is zero (b) is equal to its radius of gyration  
(c) is supported on all side throughout its length (d) is between the points of zero moments
56. Work schedule is  
(a) Detail list of works to be taken up for a specified period of time  
(b) Detail list of works that has been completed  
(c) Important list of work  
(d) None of these
57. The Unit of tack coat in bituminous pavement work is taken as sqm. because  
(a) It is a surface work  
(b) It is a bituminous work  
(c) The thickness is very small to measure  
(d) All of these

- 58.** The unit of measurement is per quintal for the following item
- (a) Collapsible gates with rails
  - (b) Rolling shutter
  - (c) Expanded metal wire netting
  - (d) Reinforcement of R.C.C. works
- 59.** Cost indices is generally work out when
- (a) New Schedule of rate (SOR) is issued
  - (b) When the contractor rate is low
  - (c) When the market rate is going up or down but new SOR is not yet ready.
  - (d) None of these
- 60.** Expenditure sanction for the work is obtained.
- (a) Before any estimate is approved
  - (b) Before obtaining Administrative approval
  - (c) After obtaining Administrative approval
  - (d) None of these
- 61.** Deviation in quantity means
- (a) Item which was not included in the original agreement
  - (b) Item whose quantity is exceeded or less in actual execution than the agreement.
  - (c) Item which is not included in the SOR
  - (d) None of these
- 62.** Substituted item is
- (a) an item executed but not included in the agreement
  - (b) an item executed in excess of original agreement quantities
  - (c) an item executed in place of other similar item having different specification and rates
  - (d) an item which was not required to be executed.
- 63.** Contingencies provided in an estimate is
- (a) provision for quality control works
  - (b) provision for staff salary
  - (c) provision to meet unforeseen expenditure in execution the work
  - (d) none of these
- 64.** Extension of time can be granted if
- (a) the contractor fails to complete the work in time due to his slow progress
  - (b) the contractor neglect his work and do not completed work in time
  - (c) there is a compensation events as per contract agreement
  - (d) there is long and heavy monsoon rain.
- 65.** In Percentage rate contract the
- (a) payments to the contractor are to be made item wise rate
  - (b) payments to the contractor are made in percentage of the work done value
  - (c) payment to the contractor is made after completion of the work
  - (d) none of these

**Directions (Questions 66):** Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

66. 120, 99, 80, 63, 48 ?

- (a) 35
- (b) 38
- (c) 39
- (d) 40

67. Study the following table and answer the questions based on it.

Expenditures of a Company (in Lakh Rupees) per Annum Over the given Years.

Year	Item of Expenditure				
	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

What is the average amount of interest per year which the company had to pay during this period?

- (a) Rs. 32.43 lakhs
- (b) Rs. 33.72 lakhs
- (c) Rs. 34.18 lakhs
- (d) Rs. 36.66 lakhs

68. Arrange the words given below in a meaningful sequence.

- 1. Word
- 2. Paragraph
- 3. Sentence
- 4. Letters
- 5. Phrase

- (a) 4, 1, 5, 2, 3
- (b) 4, 1, 3, 5, 2
- (c) 4, 2, 5, 1, 3
- (d) 4, 1, 5, 3, 2

69. Arrange the words given below in a meaningful sequence.

- 1. Police
- 2. Punishment
- 3. Crime
- 4. Judge
- 5. Judgement

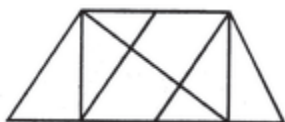
- (a) 3, 1, 2, 4, 5
- (b) 1, 2, 4, 3, 5
- (c) 5, 4, 3, 2, 1
- (d) 3, 1, 4, 5, 2

**Directions (Questions 70):** Pick out the most effective word(s) from the given words to fill in the blank to make the sentence meaningfully complete.

70. Catching the earlier train will give us the ..... to do some shopping.

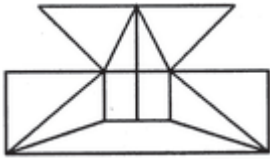
- (a) chance
- (b) luck
- (c) possibility
- (d) occasion

71. Find the number of triangles in the given figure.



- (a) 8
- (b) 10
- (c) 12
- (d) 14

72. Find the minimum number of straight lines required to make the given figure.



- (a) 16
- (b) 17
- (c) 18
- (d) 19

**Directions (Questions 73):** In each of the following questions, arrange the given words in a meaningful sequence and thus find the correct answer from alternatives.

73. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y, is P?
- (a) North
  - (b) South
  - (c) South-East
  - (d) None of these

**Directions (Questions 74):** Find the statement that must be true according to the given information.

74. Vincent has a paper route. Each morning, he delivers 37 newspapers to customers in his neighbourhood. It takes Vincent 50 minutes to deliver all the papers. If Vincent is sick or has other plans, his friend Thomas, who lives on the same street, will sometimes deliver the papers for him.
- (a) Vincent and Thomas live in the same neighborhood.
  - (b) It takes Thomas more than 50 minutes to deliver the papers.
  - (c) It is dark outside when Vincent begins his deliveries.
  - (d) Thomas would like to have his own paper route.

**Directions (Questions 75):** Read the question carefully and choose the correct answer.

75. Four people witnessed a mugging. Each gave a different description of the mugger. Which description is probably right?
- (a) He was average height, thin, and middle-aged.
  - (b) He was tall, thin, and middle-aged.
  - (c) He was tall, thin, and young.
  - (d) He was tall, of average weight, and middle-aged.