MIZORAM PUBLIC SERVICE COMMISSION

GENERAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF ASSISTANT DIVISIONAL ACCOUNTANT UNDER FINANCE DEPARTMENT 2014

ARITHMETIC

Time Allowed : 3 hours | Full Marks : 100

Marks for each question are indicated against it.

Attempt all questions.

1. Answer the following: **(20×1=20)**

(i) The sum of place and face values of 8 in 46891 is

(a) 88 (b) 888

(c) 800 (d) 808

(ii) In a school, 5/8 of the students are boys. If there are 240 girls, then the number of boys in the school is-

(a) 300 (b) 400

(c) 450 (d) 350

(iii) What will be the HCF of $(3\times4\times9\times11), (3\times4\times11\times13), (3\times4\times5\times11)$ and $(3\times4\times5\times9)$?

(a) $3\times4\times5$ (b) $3\times4\times5\times11$

(c) 3×4 (d) 3×11

(iv) The vulgar fraction of $0.3\overline{6}$ is

(a) $\frac{9}{25}$ (b) $\frac{2}{5}$

(c) $\frac{11}{30}$ (d) $\frac{1}{15}$

(v) $783\div9\div0.75 = ?$

(a) 116 (b) 118

(c) 124 (d) 134

(vi) $\sqrt{15^4} = ?$

(a) 235 (b) 225

(c) 265 (d) 285

(vii) The average of first 5 odd numbers is

(a) 25 (b) 10

(c) 15 (d) 5

(viii) The mean proportional between 8 and 50 is

(a) 10 (b) 200

(c) 100 (d) 20

(ix) In an auditorium, the number of rows is equal to the number of chairs in each row. If the capacity of the auditorium is 2025, then the number of chairs in each row is

(a) 35 (b) 40

(c) 45 (d) 55

(x) The multiplicative inverse of $\frac{\sqrt{3}}{2}$ is

(a) $\frac{\sqrt{2}}{\sqrt{3}}$ (b) $\frac{2}{3}$

(c) $\frac{2}{\sqrt{3}}$ (d) $\frac{\sqrt{2}}{3}$

(xi) By what number should $\frac{-33}{8}$ be divided to get $\frac{-11}{2}$?

(a) $\frac{-3}{4}$ (b) $\frac{3}{4}$

(c) $\frac{8}{11}$ (d) $\frac{-8}{11}$

(xii) If cost of 15 books be Rs.105, calculate the cost of 3 dozens of books.

(a) Rs.315 (b) Rs.525

(c) Rs.252 (d) Rs.540

(xiii) A die is thrown once, the probability of getting an even number is

(a) $\frac{1}{2}$ (b) $\frac{1}{6}$

(c) $\frac{1}{4}$ (d) $\frac{1}{3}$

(xiv) A speed of 40 m/s is same as

(a) 200 km/h (b) 144 km/h

(c) 240 km/h (d) 360 km/h

(xv) A can do a work in 15 days and B in 20 days. If they work on it together for 4 days then the fraction of the work that is left is

(a) $\frac{1}{4}$ (b) $\frac{8}{15}$

(c) $\frac{7}{15}$ (d) $\frac{1}{10}$

(xvi) The area of a rectangular plot is $462m^2$ and its length is 28m. The breadth of the plot is

(a) 15cm (b) 16cm

(c) 16.5cm (d) 17cm

(xvii) A gun is fired at a distance of 1.34 km from Zovi and she hears the sound after 4 seconds. The speed of the sound is-

(a) 330 m/sec (b) 332 m/sec

(c) 334 m/sec (d) 335 m/sec

(xviii) What percent is 875g of 10 Kg?

(a) 87.5% (b) 8.75%

(c) 85.7% (d) 8.57%

(xix) The digit at the ten's place in the square root of 15876 is equal to

(a) 6 (b) 4

(c) 3 (d) 2

(xx) A cube of side 6cm is cut into a number of cubes each of side 2cm. The number of cubes formed is

(a) 6 (b) 9

(c) 12 (d) 27

2. Answer the following: **(15×2=30)**

(i) Find the value of x for which $\left(\frac{3}{7}\right)^{-8} \times \left(\frac{3}{7}\right)^{12} = \left(\frac{3}{7}\right)^{2x}$

(ii) Find the LCM of 0.3, 1.2 and 2.1

(iii) Calculate the value of $\sqrt{15 \times 163 \div 5 - 89}$

(iv) If the cost price of 10 pens is equal to the selling price of 8 pens. Find the gain percent.

(v) Rema buys a fan whose marked price is Rs.1,400 and sale tax is charged @ 5%. Find the amount paid by Rema for the fan.

(vi) A loan of Rs.31,200 is returned in three equal annual instalments of Rs.11,000 each. What is the total interest charged?

(vii) A car runs at 72 km/h. How far can it go in 15 seconds?

(viii) Simplify : $\frac{1}{\sqrt{9}-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-\sqrt{4}}$

(ix) Make 'l' the subject of the formula $T = 2\pi\sqrt{\frac{l}{g}}$

(x) The perimeter of an equilateral triangle is 45 cm. Find its area.

(xi) Find the length of the longest pole that can be put in a room 10m long, 9m broad and 7m high.

(xii) Find the smallest number by which 1323 must be multiplied so that the product is a perfect cube.

(xiii) If $\sqrt{2} = 1.4142$, find the value of $\frac{3}{\sqrt{2}}$ in decimal number.

(xiv) A mixture contains sugar and water in the ratio of 2:11. If it contains 4.6 Kg of sugar, find the quantity of water in the mixture.

(xv) In what time will Rs.1,600 amount to Rs.1,768 at 6% per annum simple interest?

3. Answer the following: **(10×5=50)**

(i) A tap can fill a tank in 6 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely?

(ii) A shopkeeper announces a discount of 5% on a TV set. If the marked price of the TV set is Rs.15,000, how much will a customer have to pay for buying the TV set if the rate of sales tax is 10%?

(iii) In an election contested by two candidates, 128 votes were declared invalid. The winning candidate scored 52% of the valid votes and won by 386 votes. Find the total number of votes polled.

(iv) A boat travels 40 km upstream in a river in the same period of time as it takes to travel 50 km downstream. If the rate of stream be 3 km/h, find the speed of the boat in still water.

(v) A person on tour has Rs.360 for his daily expenses. If he extends his tour by 4 days he has to cut down his daily expenses by Rs.3 per day. Find the original duration of the tour.

(vi) Divide 16 into two parts such that twice the square of the larger part exceeds the square of the smaller part by 164.

(vii) A candidate scoring 30% of the maximum marks in an examination, fails by 27 marks while another who scores 40% of the maximum marks, gets 18 marks more than that required for passing. Find -

(a) the maximum marks

(b) the number of marks necessary for passing

(viii) Find the value of the expression $\frac{1}{2}\times\sqrt{\frac{0.81\times 0.484}{0.064\times 6.25}}$

OR

Solve for x : $\left(\sqrt[3]{\frac{2}{3}}\right)^{x-1}=\frac{27}{8}$

(ix) If oranges are bought at 11 for Rs.30 and sold at 10 for Rs.31, find the loss or gain percent.

(x) Mawia has 50p, 25p and 10p coins in the ratio of 5:9:4, amounting to Rs.412. Find the numbering coins in each type.

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