PROGRAMMING BEGINNER TO ADVANCED

IF-ELSE

1.Write a program to accept a number and check: (a) whether the number is **divisible by 2 and 5.** (b) Whether the number is **divisible by 2 but not by 5**. (c) the number is **divisible by 5 but not by 2.** The program must display the message accordingly.

2. Write a program to accept a number and check whether the number is a **perfect square or not**. A number is known as a square number or perfect square if the number is a square of another number. That is an number n is square if it can be expressed as n = a * a where a is an integer.
Example: 9 = 3 * 3, 25 = 5 * 5, 100 = 10 * 10

3. Write a program to find **largest of two** numbers.

4. Write a program to find **largest of three** numbers.

5. Write a program to check **odd or even number**.

6. Write a program to check odd or even number **without else keyword use.**

7. Write a program to find **smallest of two** numbers.

8. Write a program to find **smallest of three** numbers.

9. Write a program to accept a number and check whether the number is a **special two digit or not.** A special two-digit number is such that when the sum of its digits is added to the product of its digits, the result is equal to the original two-digit number. Example: Consider the number 59. Sum of digits = 5+9=14, Product of its digits = 5 x 9 = 45, Sum of the digits and product of digits = 14 + 45 = 59

10. Write a program to enter the temperature and print the following message according to input temperature?

temp<=0	“very cold”
0<temp<=10	“cold”
10<temp<=20	“Cool out “
20<temp<=30	“Warm”
temp>30	“Hot”

11. Write a program to accept a number and check whether the number is **Buzz number or not.** A number is said to be Buzz Number if it ends with 7 or is divisible by 7. For Example -1007 – last digit 7 . 14 – divisible by 7 .

12. Write a program to accept a number and check whether the number is **Automorphic number or not.** An automorphic number is a number which is present in the last digit(s) of its square. Example: 25 is an automorphic number as its square is 625 and 25 is present as the last digits

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13. Find the Total marks, Percentage and Grade of the student that is appears in five different subjects. Grade according to percentage-

Percentage	Grade
>=80	E+
70 – 80	E
60 – 70	A+
50 – 60	A
40 – 50	B
< 40	Fail

14. Calculate the total charge of Electricity Bill if consumer consume U unit monthly charges according to First 100 Unit 40 paisa per unit, next 200 unit 50 paisa per unit and beyond 300 unit 60 paisa per unit.

15. A company insures its drivers in the following cases-
-If the driver is married.
-If the driver is unmarried, male & above 30 years of age.
-If the driver is unmarried, female & above 25 year of age.
In all other case driver is not insured. Write a program to determine whether the driver is to be insured or not, if marital status, sex and age are inputs.

16. Admission to a professional course is subjected to the following –
i) Marks in Math's >=60
ii) Marks in Physics >=50
iii) Marks in Chemistry >=40
iv) Total in all three subjects >=200
OR
Total in Math's and physics >=150.Given the marks in the three subjects, write a program to process the applications to the eligible candidates.

17. Write a program to accept a year and check whether the year is leap year or not
How to know if Year is a Leap Year:
1. Leap years are any year that can be evenly divided by 4 (2012, 2016)
2. Except if it can be evenly divided by 100, then it's not (2100, 2200)
3. Except if it can be evenly divided by 400, then it is leap year (2000, 2400)

18. Write a program to accept three numbers. If they are unequal then display the greatest number otherwise, display they are equal.

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19. Write a program to accept the sides of a triangle and display whether it is an Equilateral or isosceles or a scalene triangle.

Equilateral Triangle= Three equal sides
Isosceles Triangle= Two equal sides
Scalene Triangle= No equal sides

20. The standard form of quadratic equation is given by: ax^2 + bx + c = 0, where d= b^2 – 4ac is known as discriminant which determines the nature of the roots of the equation accordingly:
If d>=0 Roots are real / If d<0 Roots are imaginary
Write a program to determine the roots of quadratic equation (if d>=0) taking a, b, c as input, otherwise roots are Imaginary.

Where roots are given by the formula R1=$\frac{(-b+\sqrt{b^2-4ac})}{2a}$, R2=$\frac{(-b-\sqrt{b^2-4ac})}{2a}$

21. Write a program to accept three numbers and check whether they are Pythagorean Triplet or not .
A "Pythagorean Triple" is a set of positive integers, a, b and c that fits the rule:
$a^2 + b^2 = c^2$
The smallest Pythagorean Triple is 3, 4 and 5. $3^2 + 4^2 = 5^2$

$9 + 16 = 25$

22. Write a program to calculate the value of sin 30°, cos 30° and tan 30°. Now, display the lowest value of the trigonometrical ratios.

23. Write a program to check whether a Number is Positive , Negative or Zero.

24. A cloth showroom has announced the following festival discounts on the purchase of items, based on the total cost of the items purchased:

Total cost	Discount (in percentage)
Less than Rs.2000	5%
Rs.2001 to Rs.5000	25%
Rs.5001 to Rs.10000	35%
Above Rs.10000	50%

Write a program to input the total cost and to compute and display the amount to be paid by the customer after availing the discount.

25. Take two integers indicating the x and y coordinate of a two-dimensional graph paper where the center point is x=0, y=0.Now print the quadrant of the given point. [If user gives input (4,5) you should print ‘First Quadrant’; If user gives input (-4,-5) you should print ‘Third Quadrant’]

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26. In an examination, the grades are given according to the marks obtained. Write a program to display the grades accordingly:

Marks	Grades
80% and above	Distinction
60% or more but less than 80%	First Division
45% or more but less than 60%	Second Division
40% or more but less than 45%	Pass
Less than 40%	Promotion not Granted

27. St Xavier School displays a notice on the school notice board regarding admission in Std. XI for choosing different streams, according to marks obtained in English , Math and Science in ICSE Examinations.

Marks obtained in diff. subjects	Stream
Eng., Math and Science >=80%	Pure Science
Eng. and Science>=80%, Math >=60%	Bio. Science
Eng. Math and Science >=60%	Commerce

28. You are going to open a bank account. If your age is greater than 18 then you can open an account. Get your age by input and print "YES" if you can open an another account otherwise print "NO".

29. Jharkhand State Electricity Board (JSEB) charges their consumers according to the units consumed (per month) as per the given tariff:

Units Consumed	Charges
Up to 100 units	Rs.1/ unit
More than 100 and up to 200 units	Rs.2/ unit
More than 200 units	Rs.2.50/ unit

In addition to the above, every consumer has to pay Rs. 50 as service charge per month. Write a program to calculate the Electricity Bill.

30. 'Atul Transport Company' Charges for the parcels from Delhi to Kolkata or Vice versa as per the given tariff:

Weight	Charge
Up to 10kg.	Rs.20 per kg.
For the next 20 Kg.	Rs.10 per kg.
For the next 20 Kg.	Rs.8 per kg.
More than 50kg.	Rs.5 per kg.

Write a program to calculate the charge for parcel taking the weight of the parcel as an input.