

MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal

Mid Sem Examination

February 2022

Course – B.Tech. Subject Name- Computer Programming & Problem solving Time- 1.30 hours Note- Answer all questions. Make suitable necessary assumptions and mention the same.	Sem – I	Section - A/B/C/D/E Subject Code CSE-104 Max.Marks-20
---	----------------	--

S No	Question	Marks
1(a)	Write a c program to check whether two integer numbers are equal or not without using subtraction(-) ,division (/) and remainder (%) , comparison (== , !=) operators. .	2
1(b)	Write a program to receive an unsigned 16-bit integer and then exchange the contents of two bytes using bitwise operators.	3
2	<p>A certain grade of steel is graded according to the following conditions:</p> <ul style="list-style-type: none">· Hardness must be greater than 50· Carbon content must be less than 0.7· Tensile strength must be greater than 5600 <p><u>The grades are as follows:</u></p> <p>Grade is 10 if all three conditions are met Grade is 9 if conditions (i) and (ii) are met Grade is 8 if conditions (ii) and (iii) are met Grade is 7 if conditions (i) and (iii) are met Grade is 6 if and only one conditions is met Grade is 5 is none of the conditions are met</p> <p>Write a c program, which will require the user to give value of hardness, carbon content tensile strength of the steel under consideration and output the grade of the steel.</p> <p>Draw the Flowchart also.</p>	3+2

3(a)	<p>Consider the following rates charged by a mobile operator for data consumption in integral units of GB:</p> <table><tr><td>Data (GB)</td><td>Rate</td></tr><tr><td>1 GB</td><td>Rs. 149</td></tr><tr><td>2 GB</td><td>Rs. 249</td></tr><tr><td>3 GB</td><td>Rs. 349</td></tr><tr><td>4 to 6 GB</td><td>Rs. 499</td></tr><tr><td>10 GB</td><td>Rs. 699</td></tr></table> <p>Write a c program using switch-case that accepts an integer from the user and prints the corresponding rate after validation. Print “invalid data plan” in case no matching data consumptions available.</p>	Data (GB)	Rate	1 GB	Rs. 149	2 GB	Rs. 249	3 GB	Rs. 349	4 to 6 GB	Rs. 499	10 GB	Rs. 699	3
Data (GB)	Rate													
1 GB	Rs. 149													
2 GB	Rs. 249													
3 GB	Rs. 349													
4 to 6 GB	Rs. 499													
10 GB	Rs. 699													
3(b)	<p>Consider a scenario, there are a total of 20 systems in a laboratory, if the first system is working, then the next two will not be working, however, the fourth system will be working. This condition repeats itself up to the last system i.e., 20. Write a program to enter the system number and print whether it is working or not.</p>	3												
4	<p>Write a program to print the following pattern:</p> <p>1 2 4 8 16 32</p> <p>1 3 9 27 81 243</p> <p>1 4 16 64 256 1024</p> <p>1 5 25 125 625 3125</p> <p>1 6 36 216 1296 7776</p>	4												