REGISTRATION NUMBER | | | | | | | | | | |

SRINIX COLLEGE OF ENGINEERING

1st INTERNAL EXAMINATION-2020-21

Subject-**DSS** Semester-6**TH** Branch-**CE**

Full Mark-**30** Time-**1.30 Hrs**

ANSWER ANY FIVE QUESTIONS (PART-A) **[2X5=10]**

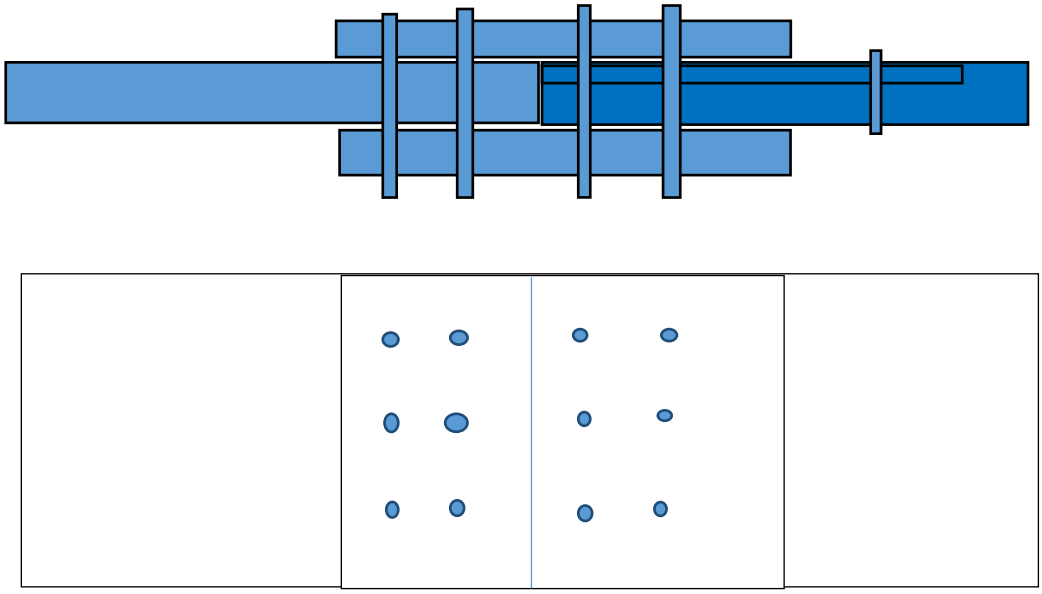
1) (a) State the ultimate relationship between ultimate strength and design strength of a material.
   (b) What is HSFG bolt? Specify the commonly available nominal dia of solid plate.
   (c) Draw a figure to show the provision made for a fillet weld applied to the edge of a plate as per IS code.
   (d) State the two advantages of steel structure over RCC structure.
   (e) If the same number of bolts has been used in joints, then which of the joints will yield highest efficiency (a) chain (b) staggered (c) diamond (d) staggered diamond

ANSWER ANY TWO QUESTIONS (PART-B) **[5×2=10]**

2) Two flats fe410 grade steel each 210mm×8mm are to be joint using 20 mm dia 4.6 grade bolt to form a lap joint. The joint is supposed to transfer a factored load of 260 kN. Determine the design strength of the bolts in joint.
3) Briefly explain the different modes of failures in bolted connections.
4) Two gusset plate of 16 mm and 14mm thickness are to be subjected to a factored tensile force of 430 KN. Effective length of the weld (a) single-V grove weld is provided
   a) (b) double-V grove weld is provided
5) Write a short note on (a) pitch (b) lap joint (c) edge distance

ANSWER ANY ONE QUESTION (PART-C) **[10×1=10]**

6) Two cover plates 10 mm and 18 mm thick are connected by a double cover butt joint using 6 mm cover plates as shown in the figure. Find the strength of the joint. Given M20 bolts of grade 4.6 and fe410 plates are used. What is the efficiency of the joint?



Pitch is given as 60 and gauge distances are 40

7) A tie member of roof truss consists of 2 ISA 100, 75 and 8 mm. The angles are connected to either side of a 10 mm gusset plates and the member is subjected to working pullof 300 KN. Design the welded connection are made in the workshop.