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Behaviour of Marine Water on Bridge Structure

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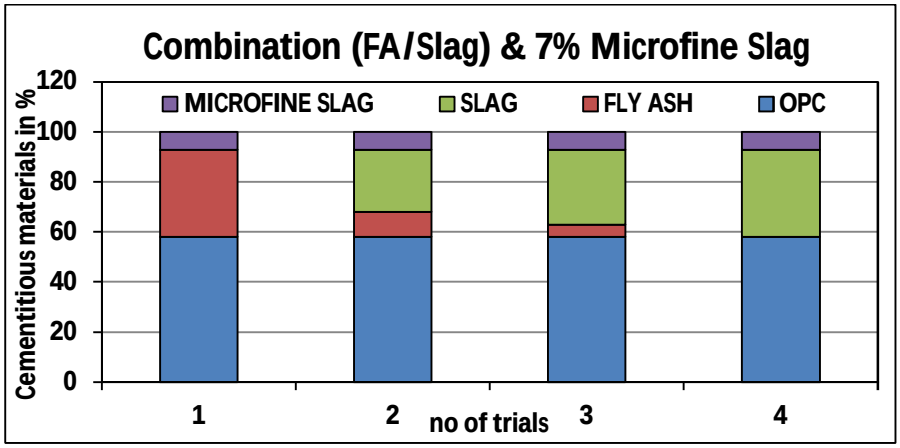
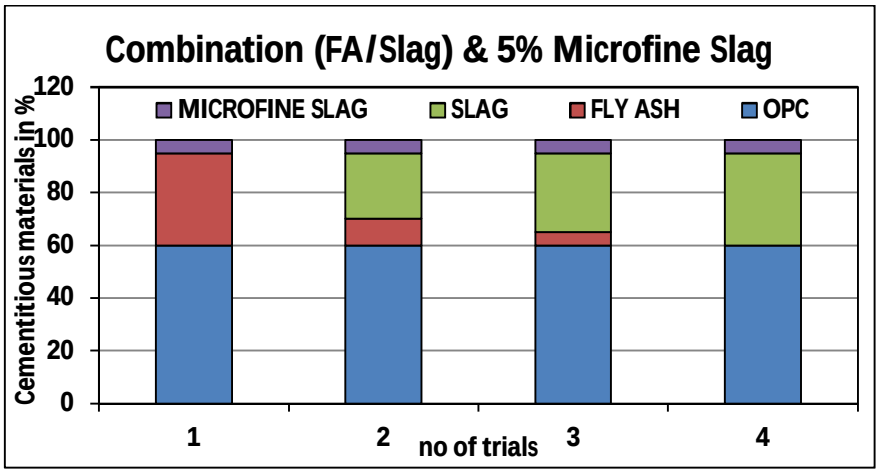
Abstract: ***Now –a-days due to increasing impurities in marine water degradation of bridge structures takes place at early stage which results in reducition of strength and durability of concrete structures .So to increase the strength of the bridges structures microfine as a byproduct can be substituted in concrete to acquire proper strength and durability.. Concrete specimens were cast from M50 grades and plain water was used as mixing water and replacing cement OPC by 35% of flyash and slag combination and 3%, 5% and 7% combination slag / Microfine Slag in making the test specimens. Test specimens were cured under marine water upto 28 days. Specimens were tested for compressive strength, flexural strength, split tensile test, considering the durability parameter.***

I. METHODOLOGY

A. In this Study Total 16 Nos of Trails will be Conducted.

1) Replacing OPC by 35% of Flyash + Slag (at every 5 % interval)
2) Replacing OPC by 35% of flyash + Slag (at every 5 % interval) + 3% Microfine slag.
3) Replacing OPC by 35% of flyash + Slag (at every 5 % interval) + 5% Microfine slag.
4) Replacing OPC by 35% of flyash + Slag (at every 5 % interval) + 7% Microfine slag.





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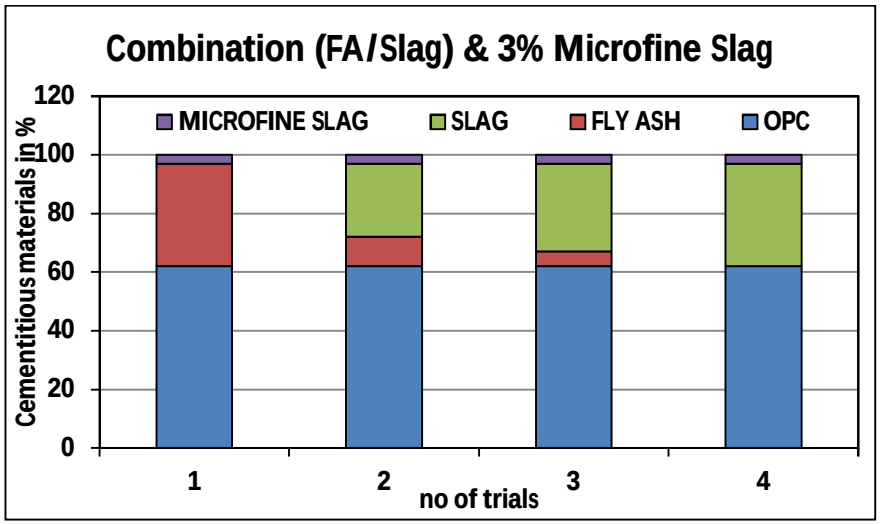

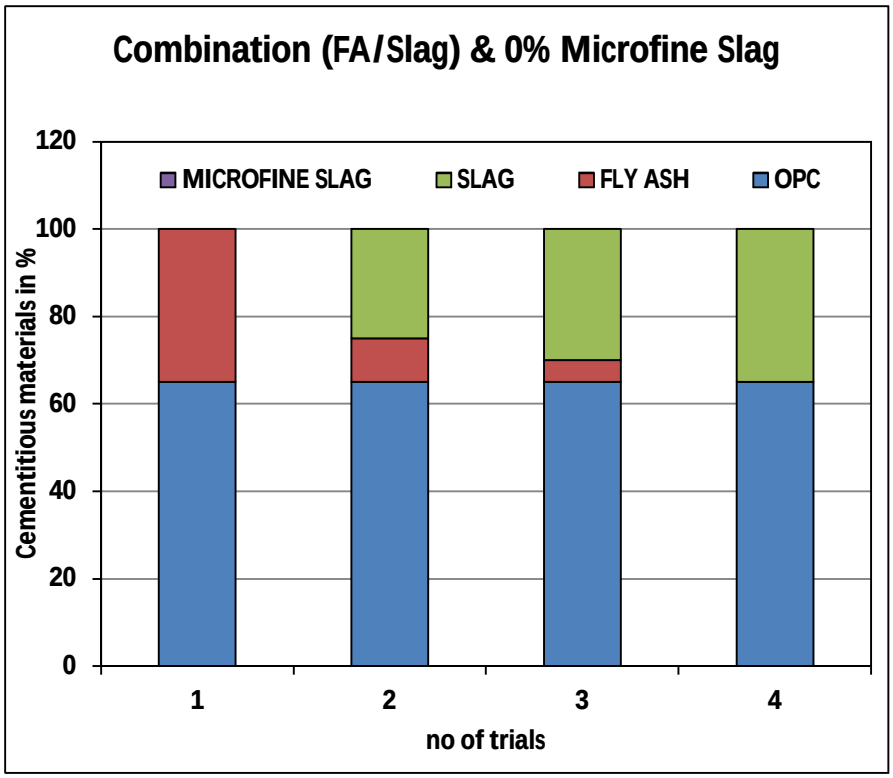

Materials used: OPC, Flyash, Microfine Slag, Slag.
Material Testing:
Aggregates: Sieve analysis, DLBD

B. Concrete Testing

1) Compressive Strength : 3D, 7D, 28D
2) Flexural Test : 28D
3) Split tensile Test : 28D

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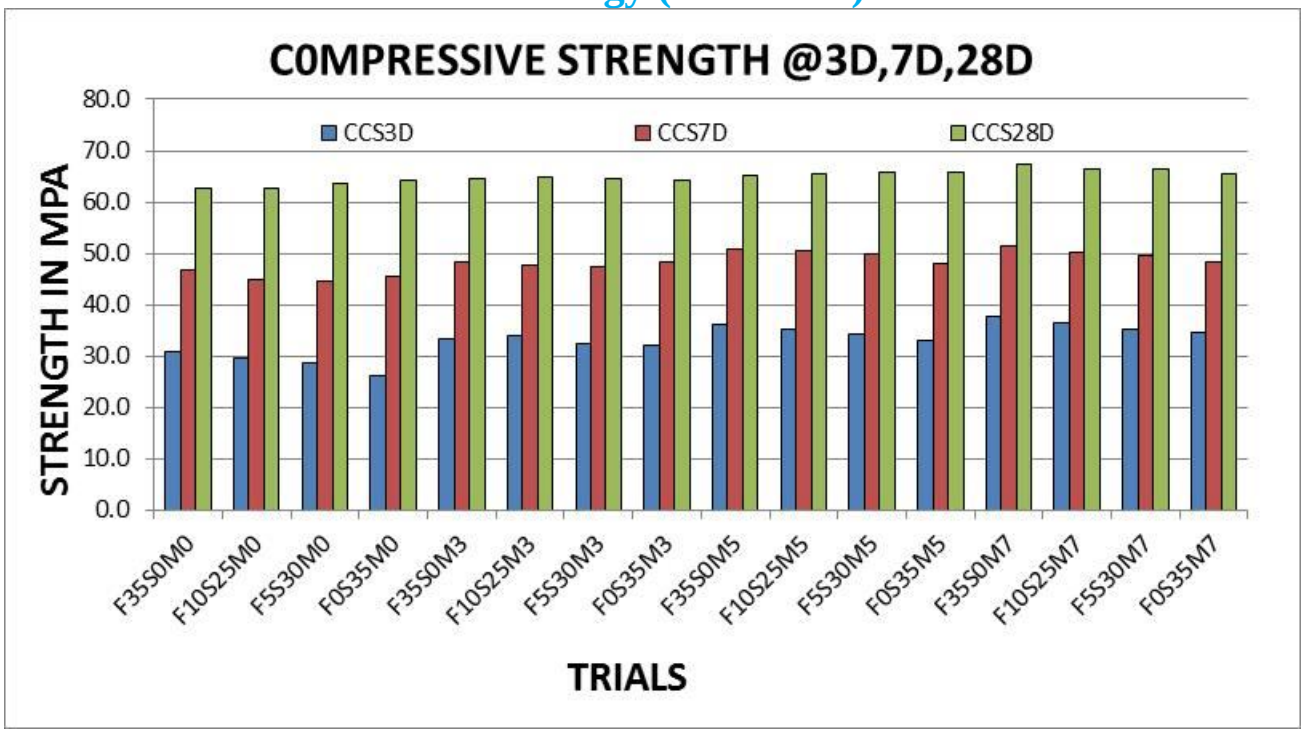
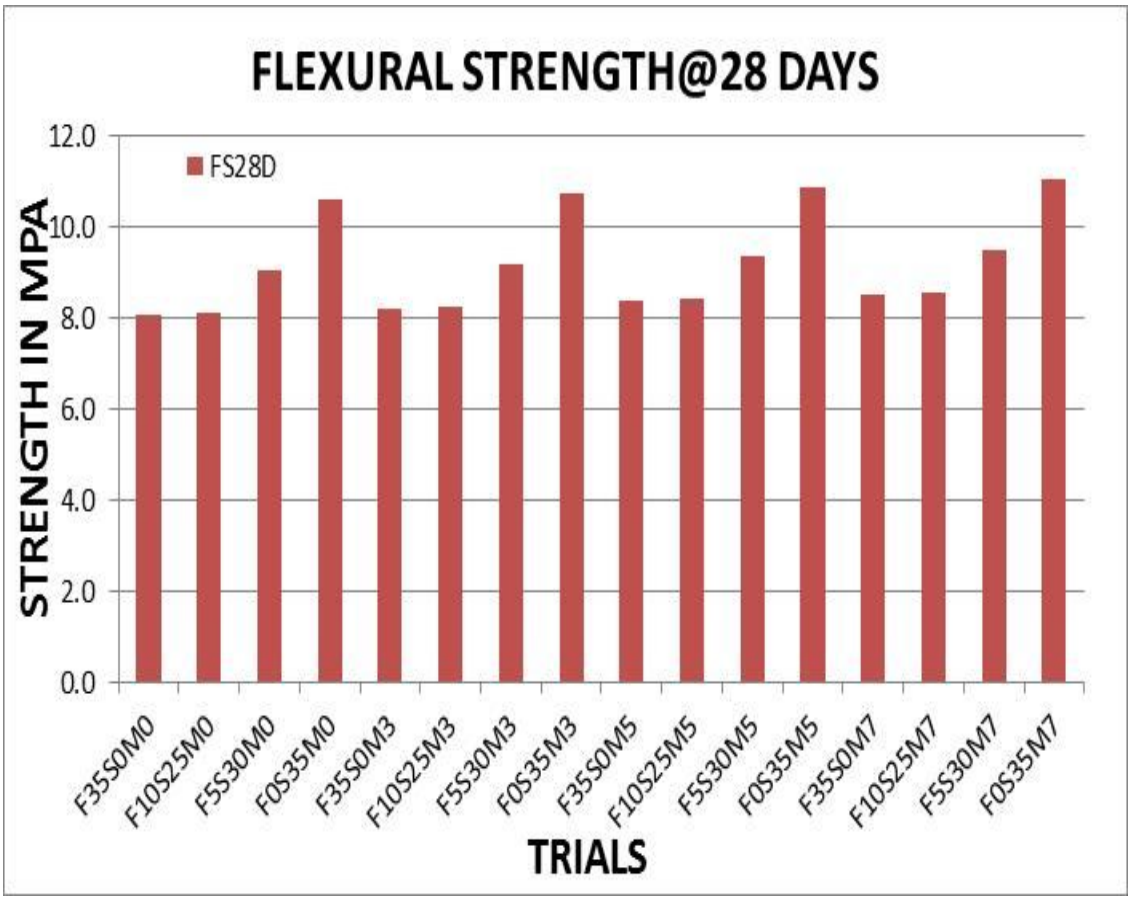


GHRAPICAL REPRESENTATION OF COMPRRIVE TEST



GHRAPICAL REPRESENTATION OF FLEXURE TEST

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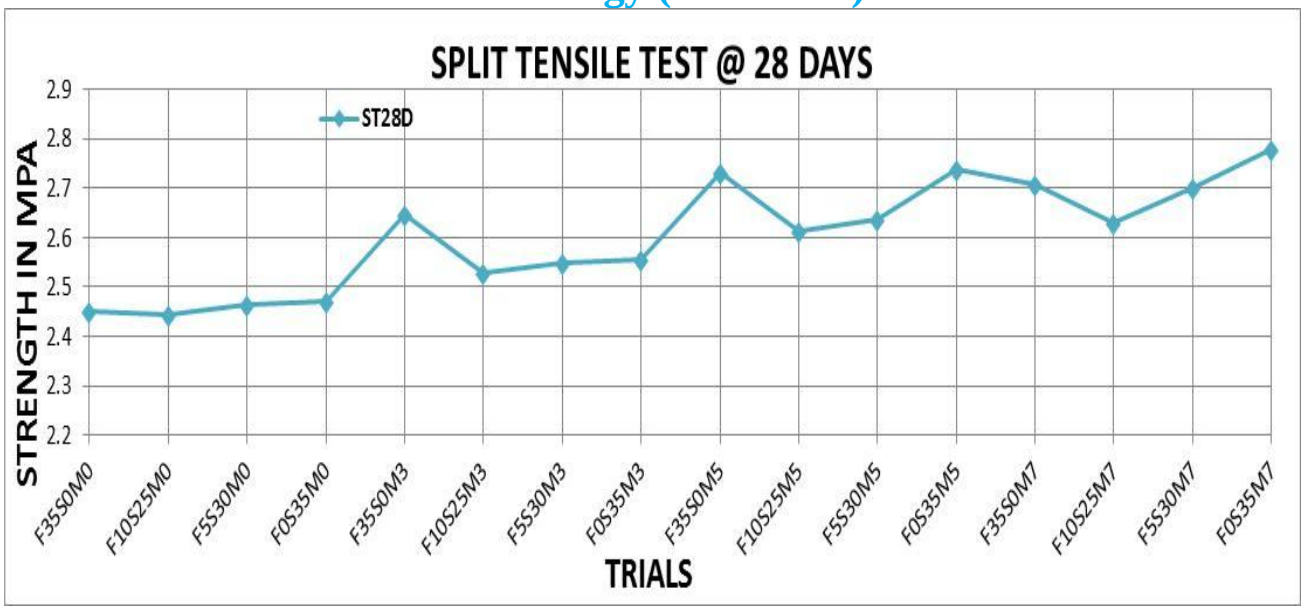
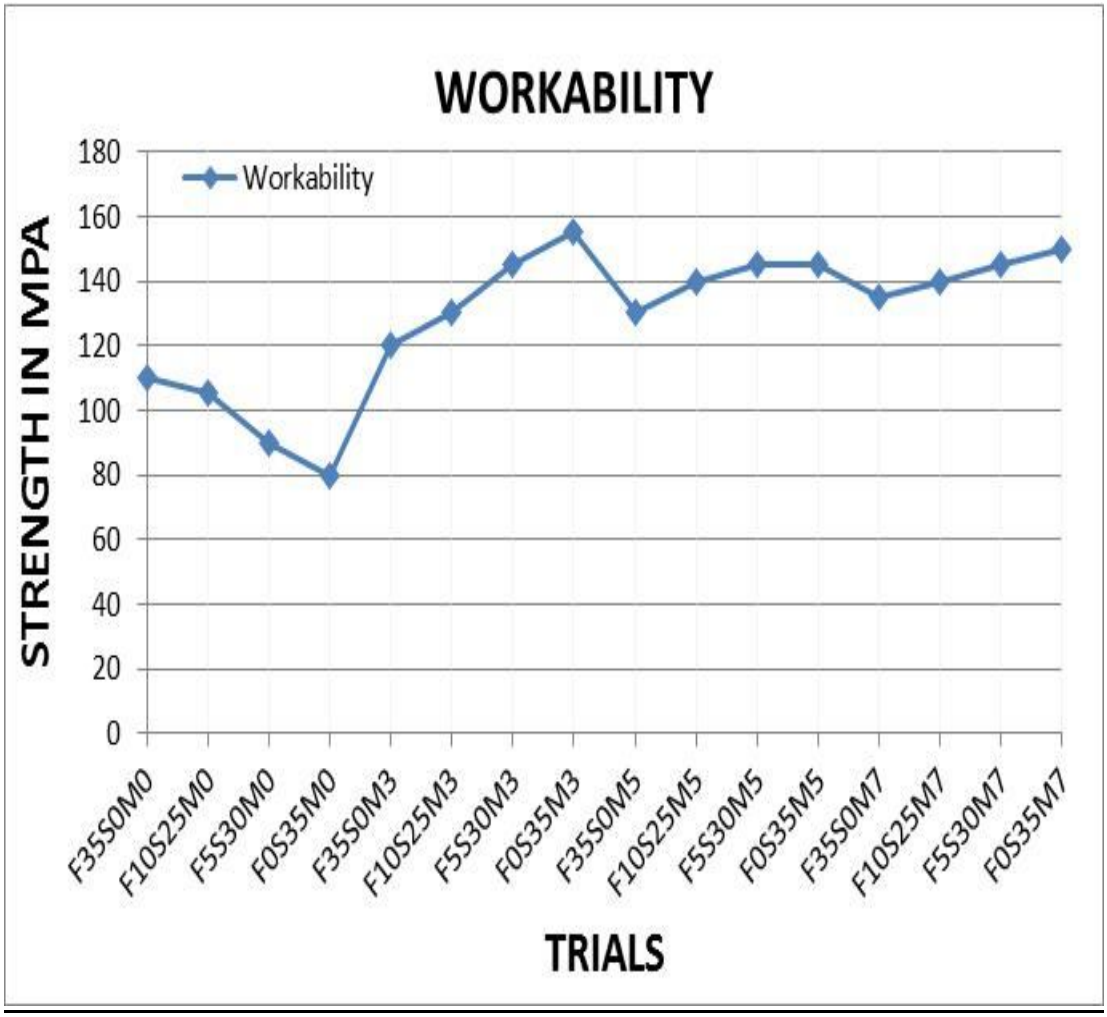


GHRAPICAL REPRESENTATION OF SPLIT TENSLIE TEST



GHRAPICAL REPRESENTATION OF WORKABILITY TEST

II. CONCLUSION

A. Combination of slag, flyash and microfine slag gives good strength. Flyash gives strength after 7 days wheras Slag gives initial strength i.e. after 3 day. And the main constitutent ie microfine gives strength from first day.

B. The strength obtained by adding 7% of microfine is then 5%, 3% & 0%.

C. But the cost is too high and the material is difficult to handle.

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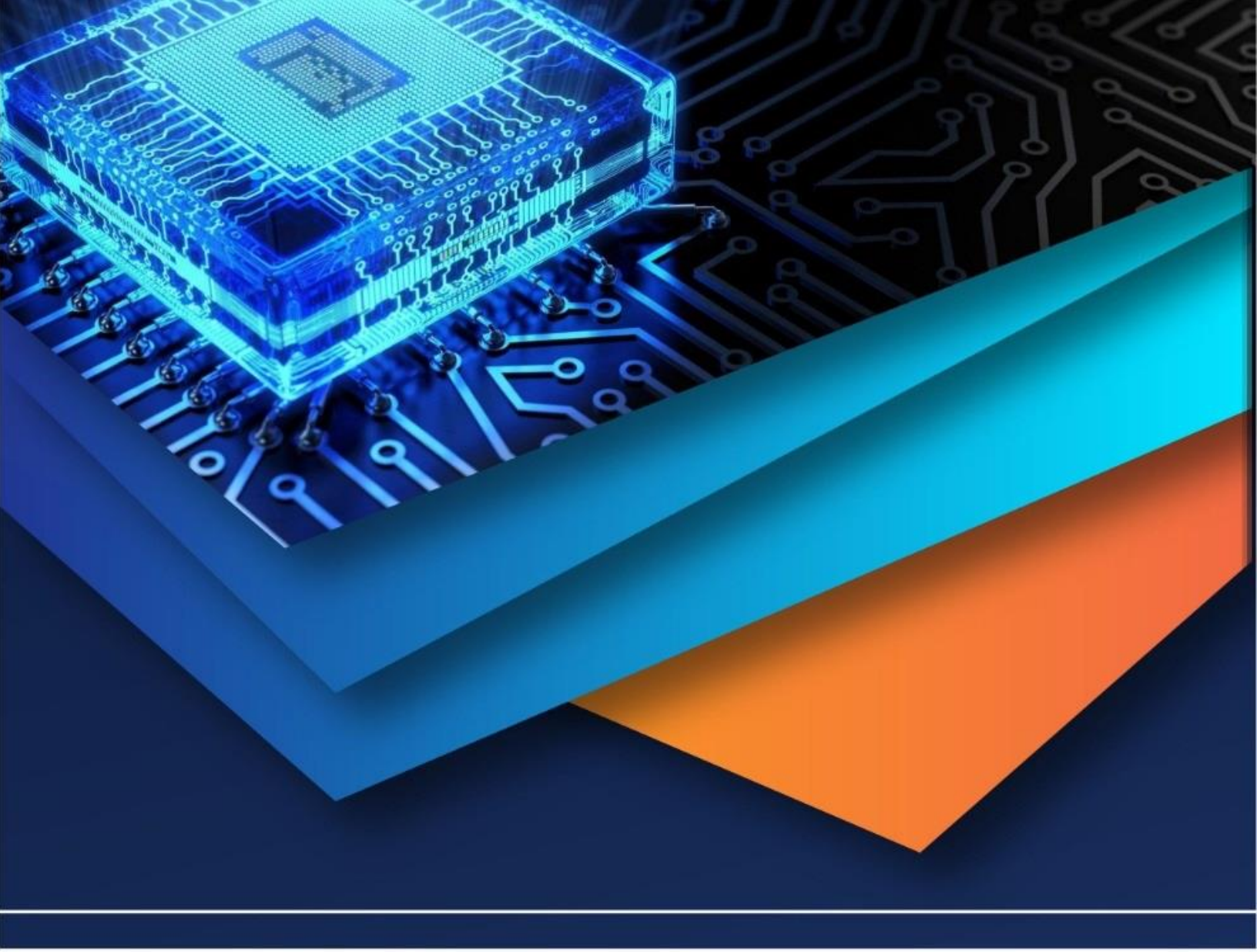

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