```
function d_sub = DiffusionIntegrator(diff_coeff,B_zn,LocGridArr)
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% $Code Version: 1.0$
% This function performs the weak form of diffusion integration
% Inputs : diff_coeff   - coefficient matrix or scalar integration
%                         constants
%          B_zn         - Shape Function gradients evaluated at integration
%                         points
%          LocGridArr   - The Grid Locations of the nodes present in the
%                         element being integrated
% Outputs: d_sub        - The diffusion element stiffness sub-matrix

    choice = 3; % diffusion

    [B,detJ] = ElementTransformation(B_zn,LocGridArr,choice);
    d_sub = diff_coeff*NumInt(B,detJ,choice);

end
```

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