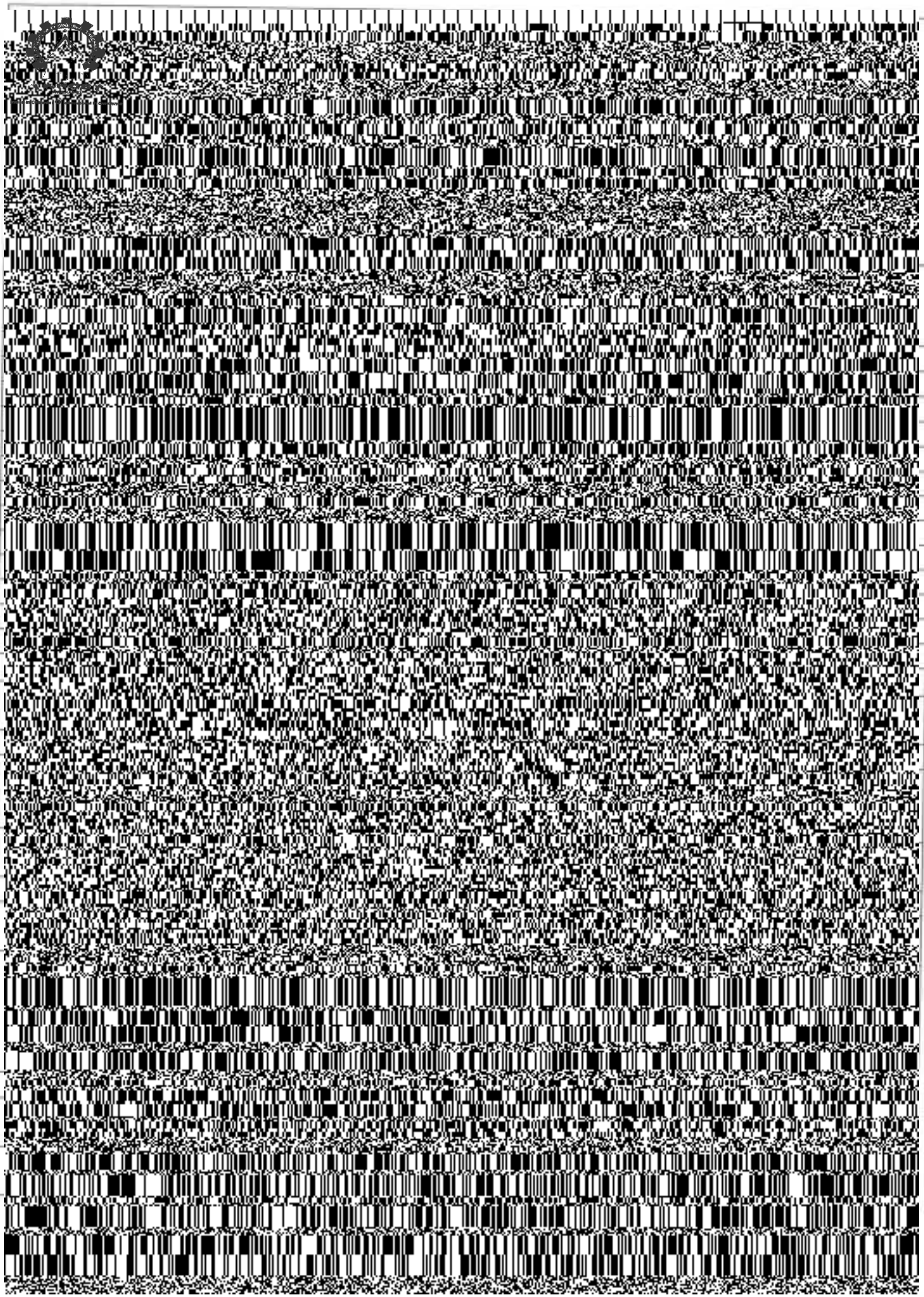

| | | | | |
|---|---|---|---|---|
| | b) Discuss in details the regenerating braking scheme for electric drives. Also list their advantages and applications? | 5M | | L3 |
| | OR | | | |
| 18 | a) What types of train services correspond to trapezoidal and quadrilateral speed time curves? Explain them with suitable graphs?<br>b) Explain the advantages of electric braking used in traction? | 5M<br>5M | 4 | L2<br>L5 |
| 19 | a) Explain the following terms in a locomotive: i) dead weight ii) effective weight and iii) adhesive weight<br>b) Derive an expression for tractive effort developed by the driving wheel of a train? | 5M<br>5M | 5 | L5<br>L4 |
| | OR | | | |
| 20 | a) Explain the different factors effecting the Specific Energy consumption?<br>b) An electric train while going down an incline of 1 in 200 has the following speed-time curve i) Starting from rest a uniform acceleration of 2.5 kmphps for 40 sec ii) Steady speed for 50 sec (with mechanical braking), iii) Coasting for 60 sec and iv) Braking at a rate of 3.5 kmphps. Assume the track resistance as 50 NW per tonne, allowance for rotational inertia 8%, overall efficiency 75%, calculate the specific energy consumption. | 5M<br>5M | 5 | L2<br>L5 |