(c)
$$p(20 \angle \times \angle 25)$$

 $= P(-\frac{5}{5} \angle 2 \angle 0) = \phi(0) - \phi(-1)$
 $= 0.5 - \{1 - .8134\}\}$
 $= 0.5 - 0.15846 = 0.31134$
(d) $p(10 \angle \times \angle 24)$
 $= p(-\frac{1}{5} \angle 2 \angle \frac{-1}{5}) = \phi(-0.2) - \phi(-1.4)$
 $= \phi(1.4) - \phi(-0.2)$
 $= 0.91924 - 0.57926$
 $= 0.33998$
(e) $p(19 \angle \times \angle 30)$
 $= p(-\frac{1}{5} \angle 2 \angle \frac{-5}{5}) = \phi(1) - \phi(-1.2)$
 $= 0.84134 - (1 - 0.88193)$
 $= 0.84134 - 0.11567$
 $= 0.7267$
 $= 0.7267$
 $= 0.7267$
 $= 0.975$
 $= 0.975$

(3)
$$\times \times N(500, (1000)^{\circ})$$

(A) $P(\times \times 6500)$
 $\Rightarrow P(\times \times 1500) = 1 - P(\times \times 1.5)$
 $= 1 - 0.93319$
 $= 0.06681$
(b) $P(5500 \times \times \times 6500)$
 $\Rightarrow P(\frac{500}{1000} \times \times \times \frac{1500}{1000})$
 $\Rightarrow P(\frac{500}{1000} \times \times \times \frac{1500}{1000})$
 $\Rightarrow P(1.5) - P(0.5) = 0.93319 - 0.69146$
 $\Rightarrow P(\times \times 5000) = P(\times \times 5000) = \frac{1}{2}$

let x = actual weight in box. Mu U. liver -

X ~ N(41.2, (0.2)2)

Pr(40 < X < 4x) = Pr (40-412 < X-41.2 < 42-41.2)

= Pr (-1.2 < 2 < 0.8), where 2 = 10/1011)

= Pr/ -1.5 x 2 x 1)

= \$(1) - \$(1.5) , Where \$(2) = pr(2 = 2)

 $= \phi(1) - [1 - \phi(1.5)] \quad \begin{cases} \vdots & \phi(-2) = 1 - \phi(2) \end{cases}$

= \$(1)+\$(1.5)-1

= 0.84134 + 0.93310 -1

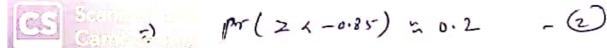
= 077453.

we want to evaluate value of & Such that (6.) pr(x(x) = 0.20.

1-1. Pr (X-41.2 / X-41.2) = 0.20.

(- (1) € i.e. pr(2 / 1-41.2) =0.2

By stundard normal distribution talle, pr(2 < 0.35) \$ 0.8



Now

$$Pr(x<40) = Pr(\frac{x-41.2}{0.3} < \frac{43-41.2}{0.3})$$

$$= Pr(\frac{2}{3} < -1.5)$$

$$= 1 - Pr(\frac{2}{3} < 1.5) = 0.06681$$

of boxes Containing her them 60g. out of 100 boxes = 0.06631 × 100 = 6.631

So Rs. 7 is scrapping cost associated with the sale of 100 boxes.



por of r.v. x is given by
$$f(x) = \frac{1}{e^{-\frac{1}{2}\left(\frac{x-4}{e^{-1}}\right)}}$$

By defination of \$45,

ful
$$z = \frac{x-y}{\sigma}$$
 | $x \Rightarrow -\infty$ thun $2 \Rightarrow -\infty$
 $\Rightarrow d2 = dx$ | $x \neq \text{end} \Rightarrow \infty$ | $x \neq \text{end} \Rightarrow \infty$

$$\frac{1}{\sigma} \int_{0}^{\infty} e^{-\frac{1}{2}\left(\frac{x-u}{\sigma}\right)^{\frac{1}{2}}} du = \int_{0}^{\infty} e^{-\frac{1}{2}z^{2}} dz.$$

$$= \int \int e^{-\frac{1}{2}} z^{2} dz = \sqrt{2\pi} \int \int e^{-\frac{1}{2}} dz = \sqrt{2\pi} \int e^{-$$

Au. C. By chi-square table, P(X2+>40.646)= P(X2+>32.5) = P(X2+>37.652) Doods ≤ P(X2 > 32.5) ≤ 0.05 By chi- square table q = 9.236. By t distribution table . -P(X>1.108) = M(X>1) = M(X>0.825) 0.15 = /~(x>1) = 0.20 (b) Pr(X52) = 1 - Pr(X72) M(x>2.306) = M(x>2)0 = M(x>1.860) 0.025 2 M(x22) 5 0.05 1 5) [0.55 = pr(x.=2) = 0.575

$$Pr(-1 < x < 1) = Pr(x < 1) - Pr(x < -1)$$

$$= Pr(x < 1) - [Pr(x > -1)] \quad \begin{cases} :: t - distribution \\ is symmetric \end{cases}$$

$$= Pr(x < 1) - [1 - Pr(x < 1)]$$

$$= 2Pr(x < 1) - 1$$

$$Since \quad 0.15 = Pr(x > 1) = 0.20 \quad (By \text{ furt } a)$$

$$\Rightarrow 0.66 = Pr(x < 1) \leq 1.7$$

$$\Rightarrow 0.66 = Pr(x < 1) \leq 0.7$$