

附件

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2018

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○

一、2018 年度课题申报须知

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%) \$\$\$%' * (\$%

\$\$!) * \$%) -- ,

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二、2018 年度课题申报指南

课题 1~课题 19 (略)

20

1t

t t t t

u

2t

1

1

4 1000mm 60000kN 1000~1400mm
≥4500× 2500mm 18 /

0.02mm

80dB

SPH

700

4~6

3

u

2

t

t

t

t

t

t

u

3

t

u

4

300

0.5su

5

95% u

6

t u

u

6

t t

t t

u

7

t t

u

4t

2018 1 —2019 12

5t

% u t

15%

1: 1

20%

u

6t

t u

t

u

u

)

„ t t t ... u

21

1t

t t t

t t t

VOC t

t u

2t

- 1 t t
10 u
- 2 1 8000~70000rpm
150~300mm 1.2m/s 50~100μm
10~500mm 10kVu
- 3 1 15%u
30~35% 30~35%
- 4 + +
20% t 85% 65%
55% 100%u
- 5 28% u
15000m³/h 25%
VOC 98% u
- 6 t t MES
95%u
- 7 t 1000
u 5
- 1 u
- 8 u
- 9 5 5 u
- 10 %\$ u

3t

- 1 u t t
- 2 u t
t t

3 u u t
u

4 t u

5 t u

4t

2018 1 —2019 12

5t

1 u t
15%

1: 1

20%

u

6t

u

t

t

u

u

% „ t t t ... u

22

1t

t t

t

t

u

u

t

u

2t
 1 t 1
 u 10 · 2.7min/ 6~10m/min
 85% u
 2 1 u 30kW
 0~1000rpm 0~200 N·m 0~100
 ± 1%FS ± 1%FS ± 1%FS ± 1
 1kHz 220Su
 3 „ ..t„
 ..t„ ..t„
 ..t„ ..t„ ..t„ ...
 10 u
 4 t
 u
 5
 u
 6 5 t 5 u
 7 10 u
3t
 1 u „
 ..t„ ..t„
 ..t„ ..t„ t
 u
 2 t t t t
 t
 u
 3 u
 t t
 u

4

u

u

t

t

u

4t

2018 1 —2019 12

5t

%

t

t

15%u

1: 1

20%u

u

6t

u

u

u

)

,

t

t

t ...

u

23

2

u

1t

t

t

t

t

u

t

t

3
 t
 4
 10
 0.5mm
 1000MPa
 1450MPa
 6%u
 5
 u
 6
 t
 3
 u
 7
 5
 5
 u
 3t
 1
 1
 /
 2
 —
 u
 3
 u
 4
 t
 u
 5
 t
 t
 u
 6
 7000
 u
 7
 u
 2
 1
 u

t t
 u
 2 u t
 t u
 3 u
 t t u
 4 u t
 t u
 5 u t
 t t u
 6 u t
 t u

4t

2018 1 —2019 12

5t

2 1
 u t
 15%u
 1: 1
 20%u

6t

u
 t t u
 t t t ... u
 u 10
 „ t t t ... u

1t

t

t

t

t

t

t

u

2t

1

1

t

20

20 u

50m/s t

6

t 0.002mmt

Rz· 1μm

6

t 0.005mmt

0.003mm u

2

1

36000rpm Xt Yt Z 400mm /

0.003/0.005mm 1g t t 50m/min

0.001mm Ra 0.1μm 3 u 2000

>5 >0.5 u

3

1

t

t

t

5 11 / u

4

GB/T11365—1989 7—8

GB/T10095—2008

7—8 GB/T10095—2008 7—8

GB/T10095—2008 7—8 u

5 5

t t t t

t t u

6 80%

80%u
 7 MTBF 2000
 C_{pk}, 1.67u
 8 t t
 9 u
 10 5 5
 11 10 u 20 u
3t
 1 t u
 2 u
 t t
 3 u t
 4 t u
 u
4t
 2018 1 —2019 12
5t
 % t
 15%u
 1: 1

20%u

6t

u

t t

u t

t u

u

10 " t t t ...

u

25

1t

t t

/ t

t

u

2t

1 2 u

/ t t t

t 20

75% u , 10 / C_{pk} 1.67u

2 , 630~800mm

0.01mm · 0.005mm , 500mm

· 0.008mm · 0.004mm 1—6mm

, 700rpm ϕ 30—400mm

GB/T10095.1—2008 7 GB/T10095.1—2008 5

Ra· 0.8μm 0.0025mm Ra0.1μm

, 400mmt 0.005mmt

0.003mm u

3 1 u
 5 5
 / u
 4 t
 t t
 t 6 0—12000
 rpmt 0—3000N·m · ± 1rpm
 · 0.05%FSu
 5 5 t
 t t t
 t t
 t
 u
 6 40%
 40%u
 7 MTBF 2000
 8 t t
 u
 9
 u
 10 5 2
 5 u
 11 10 u
 3t
 1 u t
 t
 u
 2 u t
 t t t t

3 u u t t
u

t t
 t t
 u
2t
 1 1
 300MPa~800 MPa t 5
 / u 1 —
 1 1.5~5 m/min · ± 0.5%
 6 3 · 100mm/st 0~250
 ± 2 u
 2 1
 100MPa~300 MPa t t 30~60 /
 u 1 1
 1400mm 0~250 ± 3 1~10m/min
 1 15~60mm
 ± 1% 2 u
 3 u 10min
 800MPa 35 MPa 1500000
 u
 4 u
 · 80 · 30min · 20μm E· 2.0u
 5 t t t 5~8
 u
 6
 u
 7 10 5
 5 u
 8 10 u
3t

1 u
t t
u t t
u
2 u
t t
t u
3 u t t
u
4 u t
t t u
5 u t
t t u
4t
2018 1 —2019 12
5t
1 u t
15%u
1: 1
20%u
u
6t
t u
t
u
u
10 „ t t t ... u

1t

t

u

2t

1

1 u

/ t

<0.03mm 50 / 1 t

20 u

2

/ Xt Yt Z , 400mm Xt Yt

Z / 0.003/0.005mm , 1gu Bt C

/ 4 /8 , 15000rpm , 2000 rpmu

3 , 100 / C_{pk}, 1.67u

4

40%

40%u

5

MTBF 2000 u

6

t t

u

7

u

8

3

2

u

3t

1

t

u

2

u

3

t

t

C_{pk}

t

t

u

4 t u

t t

5 t t

u

6 t t

t t u

7 u

4t

2018 1 —2019 12

5t

% u t

15%u

1: 1

20%u

6t

t t

u t

t

u u

10 „ t t t

... u

28

1t

t t

t t t t

t
 u
 u
 2t
 1 t
 t 20
 C_{pk} 1.67 6 u
 2 2 u
 3000rpm ± 0.003mm
 380mm GB/T10095—2008 5 80m/s
 7500 rpm 1~6mm 12~560
 100mm ± 45° GB/T10095—2008 6
 Ra1.6μm 4mm 100mm
 Φ300mm Ra· 0.32μm 0.0015mm
 0.005mm 1000mm 320mm
 H8 Ra3.2 2000 rpm 0.001
 ° u
 3 1
 u 630—800mm · 0.01mm
 · 0.005mm 500mm · 0.008mm
 · 0.004mm IT6 <0.01mm u
 4 6
 t t t
 t t u
 5 5 u
 1738 N·m
 G2.5 3619 N·m
 6 t

u

7 4

t

t

t

u

8

MTBF

2000

u

9

t

t

u

10

u

11

40%

40%u

12

5

5

u

13

10 u

14

20

u

3t

1

u

2

/

u

3

u

4

t

t

t

u

5

t

u

6

t

u

7

u

4t

2018 1 —2019 12

5t

%

u

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15%u

1: 1

20%u

u

6t

t

t

u

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t

u

u

10

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u

29

1t

t

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—

...

t

t

t

u

t

t

100%u

2t

1

1

t

1

15

20

80%

C_{pk} 1.67u

2

:

500× 500mm

X/Y/Z, 500/650/650 mm

X/Y/Z,

60/60/60 m/min

40

X/Y/Z

0.008mm

X/Y/Z

0.004mmu

3

40%

7 5 5 u
 8 %\$ u
3t
 1
 1 t u
 2 u ,
 , , , u
 3 u ,
 , , , u
 4 u u
 2
 1 u
 2 t t u
 u /
 3 u
 4 t
 u u
 t t u
 5
 u u

u

6

u

t

u

u

4t

2018 1 —2019 12

5t

2

1

u

t

15%u

1: 1

20%u

u

6t

t

u

t

u

u

10

,

t

t

t

...

u

30

1t

/

t

t

t

t

t

u

2t

1 t 1 10
 u 20 $C_{pk}, 1.67u$
 2 630—800mm
 · 0.002 mm · 0.005 mm · 0.004mm
 , 0.8—1.0g B · 4 , · 2 u
 3 4 t
 u
 4 60%u
 5 MTBF 2000 u
 6 t t
 u
 7
 u
 8 3 5
 u
 9 10 u
3t
 1 /
 u t
 u
 2 t u
 u
 3 t t t t

u
 4 t t t t
 t t t t u
 5 u t
 t t t t
 t u
 6 MES t t t
 t t t t
 t t
 u
4t
 2018 1 —2019 12
5t
 1 u t
 15%u
 1: 1
 20%u
 u
6t
 t u
 t
 u
 u
 5 „ t t t ... u

课题 31 (略)

32

FMC

1t

u

FMC

FMS

u

2t

1

FMC

2

FMS

u

800—1200mm

· 0.005mm

· 0.0025mm

· 4"

· 2"

2

100%

3

1000

4

MTBF

2000

5

t

6

7

3

2

8

10

u

3t

1

2

3

4

5

6

u

4t

2018 1 —2019 12

5t

2

u

t

15%u

1: 1

20%u

u

6t

u

u

800—1200mm

· 0.003mm

· 0.0015mm

· 4"

· 2"

u

2

1000

u

3

MTBF

2000

u

4

u

5

u

6

20± 0.5

60%

· 5%u

7

5

2

u

8

10

u

3t

1

t

2

3

t

4

t

t

t

5

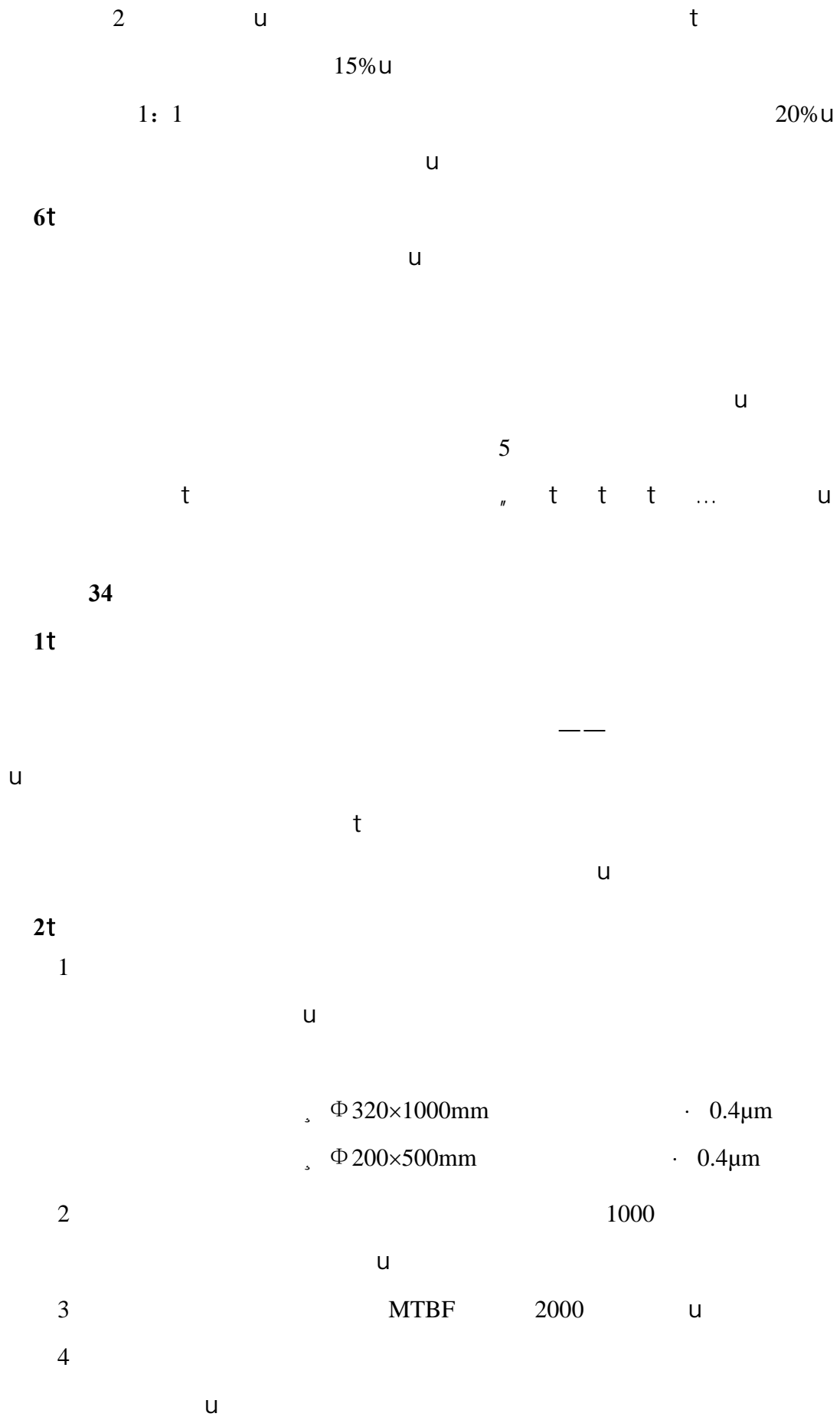
· 0.002mm

· 10000 u

4t

2018 1 —2019 12

5t



5

u

6

3

2

u

7

10

u

3t

1

2

3

4

u

4t

2018 1 —2019 12

5t

2

u

t

15%u

1: 1

20%u

u

6t

u

u

5

t

„ t t t ... u

35

1t

t t t t

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2025...

u

2t

1

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RFID

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6

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7

3~5

8

MTBF

30000

9

10

10

5

11

20

u

3t

1 / t t
t t RFID u
2 t t t
u
3 t t
u
4 t t
t t u
5 Digital Twin
t t Digital Twin
Digital Twin Digital Twin t t
u
6 t DNC MES t
t u
7 t — t
IEC t
NC J2ME u
8 t
t / / u
9 u
10 u
4t
2018 1 —2019 12

5t
 2 u
 0.5: 1 20%u
 u
6t
 u u
 u
 u
 5 t t t ...
 u t t t ...
36
1t
 t
 u
2t
 1 A/C
 A/B t
 10 u
 A/C
 $A_s \pm 95^\circ$ $C_s \pm 200^\circ$ A/C
 $\cdot 0.002^\circ$ $\cdot 0.004^\circ$
 2000N·m
 $\cdot 0.002^\circ$ 7... RTCP $\cdot 0.05$ mm
 A/B $A_s \pm 30$
 $\cdot 0.002^\circ$ 10000N·m $\cdot 0.004^\circ$
 $\cdot 0.002^\circ$ 7... RTCP $\cdot 0.05$ mmu

2

MTBF

2000

u

3

t /

t

t

u

4

u

5

10

u

3t

1

t

t

t

u

2

t /

t

u

3

t

u

4

u

5

t

u

4t

2018

1

—2019

12

5t

1

u

u

0.5: 1

20%u

u

6t

u

u

t

u

u

5 „ t t t ... u

37

1t

t

u

2t

1 B/C 40kW
 , 2000rpm , 2000N·m C , n×± 360
 ° B , ± 95° 0 – 2160° /min , 7500N·m
 2 B/A 30kW
 , 1000rpm , 1000N·m A , ± 240°
 0 – 1200° /min , 4500N·m B 10° / 190
 ° 0 – 600° /min , 10000N·m
 3 B/C
 30kW , 900rpm , 1000N·m C
 , n×± 360° B 10° / 190° 0—700° /min
 , 9000N·m

4 CAD/CAM u

5

t

u

6 10 u

3t

1 t

u

2 t t

u

3

u

4

CAD/CAM u

5

u

u

4t

2018 1 —2019 12

5t

1 u

u

0.5: 1

20%u

u

6t

u

u

5

u „ t t t ... u

38

1t

u

t

u

u

2t

1

t

u

120

48

ISO40t 50

2.5su

2

t

100

200

t

u

3

t

2

÷ Ñ Ñ Ñ PÒ @

5t

1

u

t

0.5:1

20%u

u

6t

u

u

u

5

t

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t

t

...

u

39

1t

t

t

MTBF

2000

u

2t

1

t

5

u

2

t

MTBF,

15000

MTBF, 6000

t

MTBF, 8000

MTBF, 5500

t

MTBF, 6500

MTBF, 6000

t

MTBF, 6000 u
 3 t t t t 10 2 u
 18000rpm 32kWu /
 12kN/5kN 60Hzu
 4 t
 10 6000 u
 5 t u 5
 6 MTBF2000 u
 7 5 5
 10 u
 8 20 200
 u
 3t
 1 t
 u t t
 t
 u
 2 u t
 u
 3 u
 u

u

4 u

5 u

t t

t u

4t

2018 1 —2019 12

5t

1 u

0.5: 1 20%u

6t

u u

u

u 10 5

„ t t t ... u

40

1t

t t t t
 u t u t
 u
2t
 1 t t t
 2
 30 u t t
 70%u
 20% u
 2
 u u
 3
 u
 4 5
 u
 5 5 10
 u
 6 10 u
3t
 1 t t u
 2
 u
 3 u t
 u

4

u

5

u

u

6

u

4t

2018 1 —2019 12

5t

1

u

t

15%u

1: 1

20%u

u

6t

u

u

u

u

5

„ t t t ... u

41

1t

t

t

t t

t t

t t

t

u

2t
 1
 0.002mm · 0.002° 1
 —10mm 6—16mm
 t t t t
 10 15
 t t
 u MTBF 2000
 u
 2 t t
 t t
 u
 3 100% t
 t t u
 4 6
 2000 u
 5 t t
 u
 6 20
 u
 7 3 10 u
 8 10 u
3t
 1
 t u
 t t
 u
 2

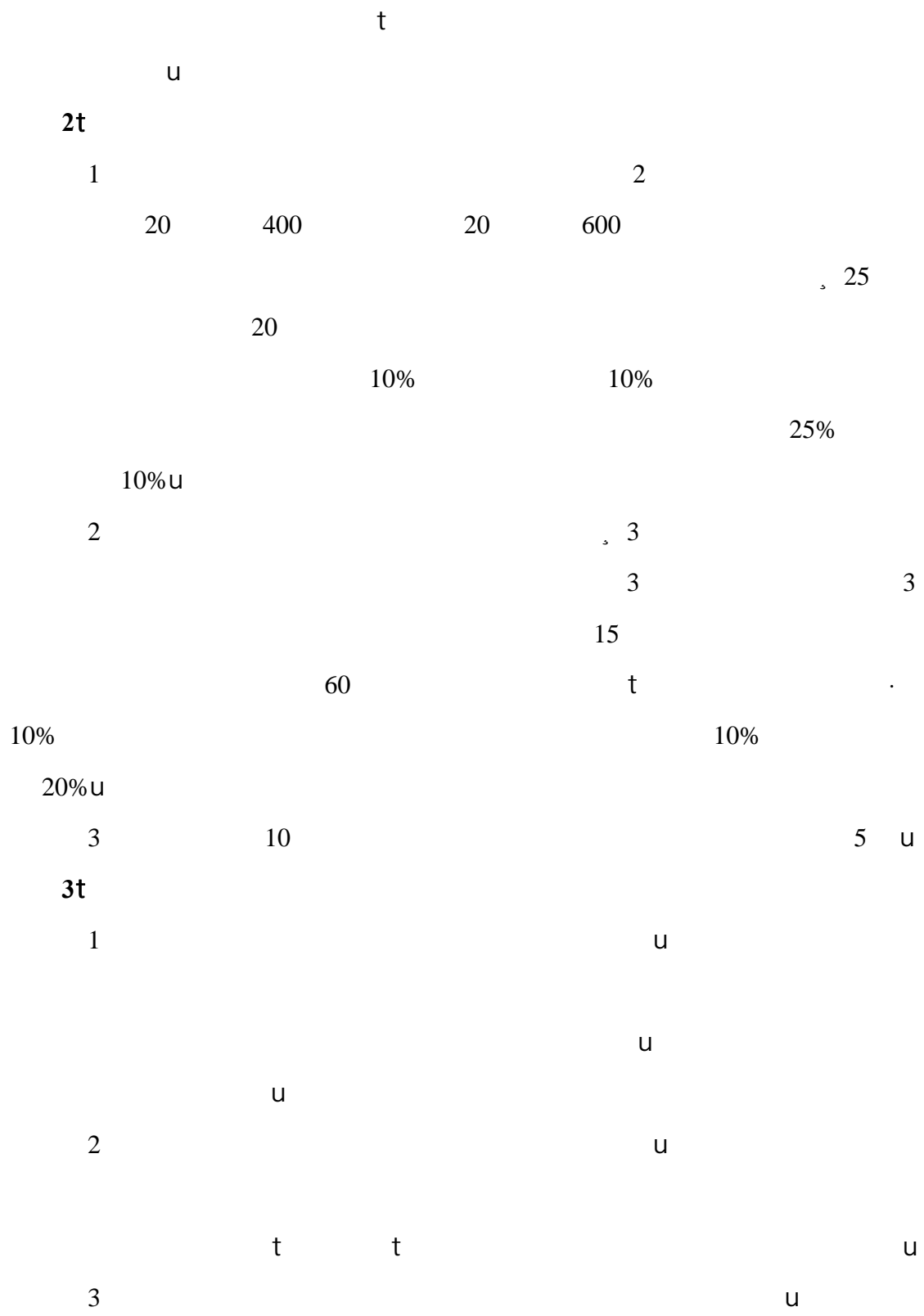
3 t u u
 4 t t
 5 u u
 6 u

4t
 2018 1 —2019 12

5t
 1 u t
 t t
 10%u
 1: 1 20%u

6t
 u
 u t u
 u
 u
 10 2 „ t t
 t ... u

42
1t



t t

u

4t

2018 1 —2019 12

5t

1 u

0.5: 1

20%u

u

6t

u

u

u

5

„ t t t ... u

课题 43~课题 46 (略)