



**SB-3763**

**M. Sc. (Tech.) in Instrumentation (Part-I) (Sem. I)  
ATKT Examination**

**March / April – 2011**

**Workshop Technology & Mechanism : Paper-INS-11**

Time : 3 Hours]

[Total Marks : 70

**Instructions :**

(1)

नीचे दशांशिक निशानीवाणी विगतो उत्तरवही पर अवश्य लખवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<b>M. Sc. (Tech.) in Instrumentation (Part-I) (Sem. I) ATKT</b>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<b>Workshop Technology &amp; Mechanism : Paper-INS-11</b>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value="6"/> <input type="text" value="3"/>	<input type="text"/>
Section No. (1, 2,.....) : <input type="text" value="Nil"/>	
Student's Signature	

- (2) Figures to the right indicate full marks for the question.  
(3) Assume suitable data if necessary.  
(4) Answer should be brief and to the point.

- 1 Answer any eight of the following : 16
- Which are the desirable properties of bearing materials ?
  - List the various steps of casting process.
  - What is rolling contact bearing and sliding contact bearing ?
  - What are the necessities of the good friction plate clutch?
  - Write down the name of various materials used in bearing.
  - Sketch and show any one index plate.
  - Why is it necessary to have quick return mechanism with shaper and planner machine ?
  - How is shaping machine specified ?
  - What is tool signature ? State as per ASA.
  - State the application of screw thread.

- 2 Write short note (any three) : 18
- (i) Write down the merits, demerits and application of casting process.. 18
  - (ii) Classify the bearings in details.
  - (iii) Write short note on hot metal working process.
  - (iv) Anti friction bearing.
- 3 Answer any three of the following : 18
- (i) Differentiate between shaper and planner.
  - (ii) What is indexing and what are the limitations of direct and simple indexing ?
  - (iii) Give detail classification of lathe machine.
  - (iv) Sketch three views of single point cutting tool and show the various angles on it.
- 4 Answer any three of the following : 18
- (i) Estimate the threading time on a lathe to cut square threads with the following data :  
Length of thread : 250 mm    Depth of thread : 2mm  
Pitch of thread : 2.5 mm      Cutting speed : 15 m/min  
Major dia of thread : 50 mm    Depth of cut : 1.25 mm/pass
  - (ii) Given : Conicity = 0.1, the length of taper = 250 mm and the dia. of smaller end = 50 mm. Calculate the larger end diameter, angle to be set on compound rest and taper in mm/m.
  - (iii) A lathe machine is supplied with lead screw of 6 TPI and change gear set of 16, 18, 20, 22,24, 26, 28, 32, 36, 40, 44, 48, 52, 56, 64, 72, 80, 100 and 127 teeth gear. Calculate the change gear ratio to cut threads of 12 TPI and 7.5 mm pitch.
  - (iv) Five thermostatic controls are tested to determine the "On" temperature. The measured values are 344°, 338°, 342°, 335° and 336°. Compare the arithmetic mean, median, range, standard deviation and variance.
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