Code No. 759/2307/NC

FACULTY OF ENGINEERING

B.E. 4/4 (EEE/Inst.) II-Semester (Backlog) Examination, September 2020

Subject : Electronic Instrumentation Systems (Elective-III)

Time: 2 hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1 An 8-bit successive approximations ADC is driven by a 1 MHz clock, find its conversion time.
2 List various specifications of D to A converters.
3 What is the use of Automatic Ranging in RMS detectors?
4 Define Total harmonic distortion.
5 Mention applications of Heterodyne Wave Analyzer.
6 What is the use of successive limiting amplifier?
7 What are the requirements for a computer operated testing?
8 List the three different state of IEEE 488 driver.
9 List advantages of the digital storage oscilloscope.
10 Write the equation for deflection of a CRT.

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 Explain instrumentation amplifier with its features, necessary circuit and derive its gain analysis equation.

12 Explain the principle of operation, construction and working of digital frequency meter with necessary diagrams.

13 What is meant by fundamental suppression? Explain harmonic distortion analyzer with diagrams?

14 Draw IEEE-488 instrumentation bus structure and explain various interfaces of it.

15 a) With block diagram explain different parts of CRT.
b) Determine detection sensitivity of a CRO, given that with usual notation, l = 2.5 cm, L = 20cm, d = 2.5mm, Vd = 5V and Va = 2000V.

16 a) With a diagram explain the operation of dual slope ADC.
b) Explain the objective of automatic polarity indication in electronic meters.

17 Write short notes on the following :
a) Phase locked circuit for local oscillator
b) Procedure of testing an Audio Amplifier

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Code No.720/2340

FACULTY OF ENGINEERING

B. E. 4/4 (Mech.) II – Semester (Backlog) Examination, September 2020

Subject: Production Drawing

Time: 2 hours **Max. Marks: 75**

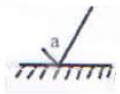
PART – A

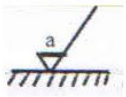
Note: Answer any Three questions. **(21 Marks)**

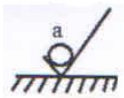
1. What is assembly drawing? Its types-design assembly drawing and working assembly drawing.

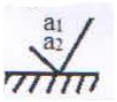
2. Sketch perpendicularity tolerance
   (i) axis as datum,
   (ii) surface as datum.

3. State the meaning of the following symbols

(i) 

(ii) 

(iii) 

(iv) 

4. Sketch material condition (MMC) and (LMC) for shaft of $40{:}00^{\pm 0.01}$ and hole size of $39.03^{\pm 0.03}$.

5. 20mm diameter size and indicate the type of fit consider suitable shaft basis system

Shaft	hole
h6-s5	s6-h5
h8-s7	s8-h7

6. Sketch machine component conventions-(i) cylindrical tension spring (ii) Splined shaft (iii) worm gear (iv) fillet weld (v) square butt weld.

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PART – B

Answer any One question. **(54 Marks)**

7. Draw TWO views of (i) part-2 Fork (ii) part 3-Centre block to dimensions in 3rd Angle Projection with tolerances and surface finish. The Universal coupling consists of 4 Parts. Parts 1 Collar of MS 2 unit, part 2 Fork of CI unit 2, part 3 center block 1 units made CI, part 4 Pin of MS with 2 units,

8. (a) Draw the Standard Part Component Drawing for Taper.
   (b) The Production Process Planning Sheet (i) part 3 – Centre block.
   (c) State the (a) symbols, (b) type of fit, (c) surface finish for the (i) Fork and shaft, (ii) Fork and center block, (iii) Pin and cetere block, (iv) Fork and Key, (v) shaft and key.

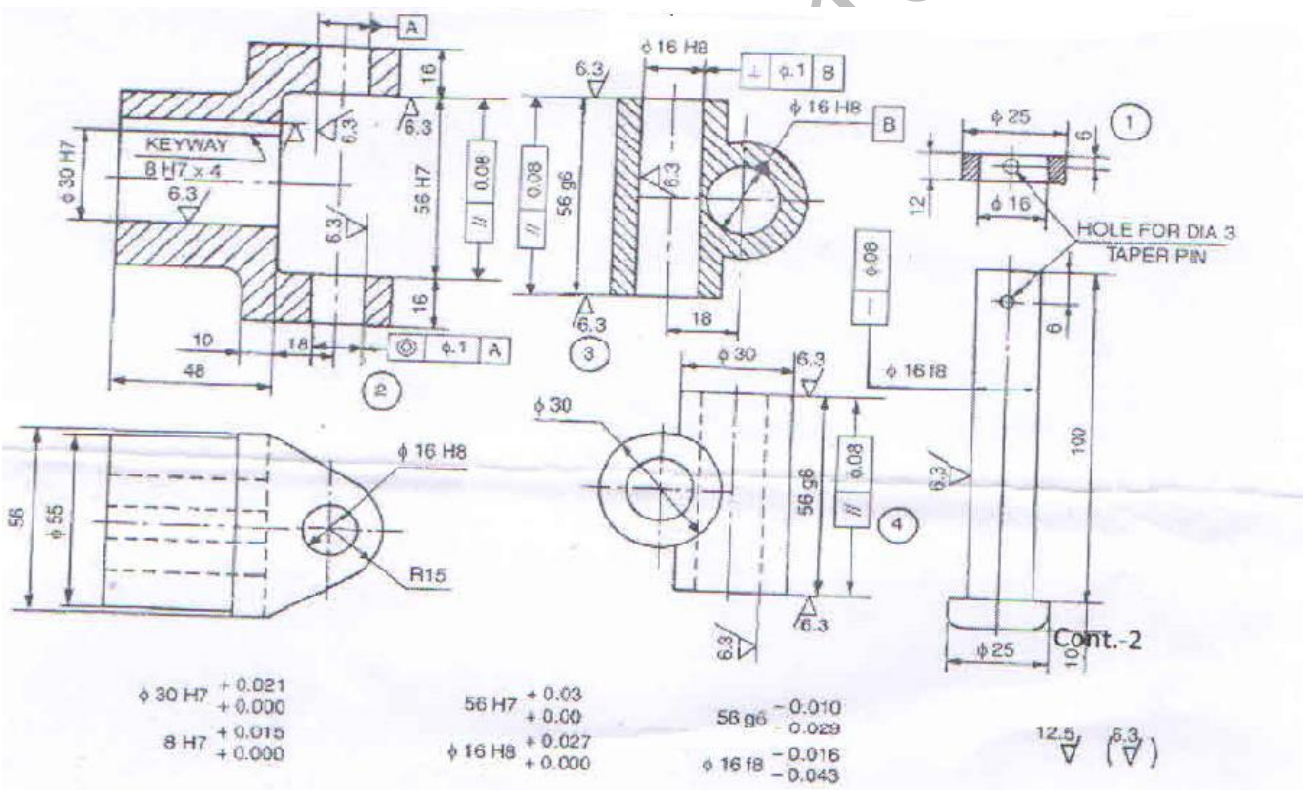

Fig. Universal Coupling

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Code No. 750/2341/NC

FACULTY OF ENGINEERING

B.E. 4/4 (Prod.) II - Semester (Backlog) Examination, September 2020

Subject : Tool Design

Time: 2 hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1 Mention the properties of cutting tool materials.
2 Differentiae between Polishing and Lapping.
3 Sketch a single point cutting tool and indicate various elements on it.
4 Differentiate between form milling and face milling cutters.
5 Sketch and mention the nomenclature of a twist drill.
6 Give a brief classification of taps and dies.
7 What is meant by Die clearance? Explain.
8 Suggest the type of press for the piercing operation.
9 Enlist the different types of locating pins.
10 Mention the applications of quick action clamps and nuts.

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11 (a) Explain principle involved in USM with the help of a neat sketch.
(b) Describe the burnishing process and mention its advantages and limitations.

12 (a) Sketch and explain the elements of a End Milling Cutter.
(b) What are the major aspects to be considered while designing a circular form tool?

13 (a) Describe the geometry of a push type broach with the help of a sketch.
(b) Discuss the step by step procedure to design and manufacture a twist drill.

14 (a) Explain the design features of a reamer.
(b) Elucidate the procedure of designing for Drawing dies.

15 (a) State and explain the elements of a Diet set.
(b) Discuss the locating methods associated with the internal surfaces.

16 (a) Discuss about the welding fixture with a relevant sketches.
(b) Explain the principle involved in hydraulic clamping.

17 Write short notes on the following:
(a) EBM process parameters
(b) Blanking Die set
(c) Vacuum Clamping

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Code No. 731/2343/NC

FACULTY OF ENGINEERING

B. E. IV/IV (A.E) II – Semester (Backlog) Examination, September 2020

Subject: Alternative Fuels and Energy System for Automobiles

Time: 2 hours **Max. Marks: 75**

PART – A

Note: Answer any seven questions. **(7x3 = 21 Marks)**

1. Explain the need for Alternative Fuels in Automobiles.
2. Explain the precautions to be Taken in handling Hydrogen.
3. Enumerate some applications of Methanol and Ethanol.
4. List out the properties of DME and DEE.
5. What are the advantages of using CNG in engines?
6. What are the properties of Bio-diesel that makes it suitable to be used on engine fuel?
7. Write a short note on emissions from H_2 powered engines.
8. What do you mean by esterification process?
9. What are the basic components of an electric vehicle?
10. Explain the advantages and Disadvantages of Solar powered vehicle.

PART – B

Note: Answer any three questions. **(3x18 = 54 Marks)**

11. a) Discuss the need of various alternative fuels over fossil fuels.
    b) Differentiate between Euro norms and Bharat-stage Norms.

12. Discuss the availability and properties of the following
    a) Alcohols
    b) Vegetable oils
    c) Bio-gas

13. Discuss the production of the following fuels in detail.
    a) H_2
    b) CNG
    c) LNG

14. Explain the process of Commercial production of ethanol from Bio-mass.

15. Explain the performance characteristics of Methanol and DEE blend in engines.

16. Compare the performance of Electric vehicle and a hybrid vehicle based on the fuel use, operation, maintenance and emissions etc.

17. Explain the importance of fuel cell vehicle and solar powered vehicle for future use in Transportation sector.

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