(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2020-21 ONLY)

(NO. OF PAGES: 1)

SUB CODE: 20UPS 5S1

REG.NO:

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : DECEMBER 2022

B.Sc. PHYSICS **MAXIMUM MARKS: 50**

V SEMESTER **TIME : 2 HOURS**

PART – IV : SKILL BASED ELECTIVE PAPER – I

MECHANICAL MEASUREMENTS

SECTION - A **(10 X 1 = 10 MARKS)**

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS. **(K1)**

1. The instrument which is used to measure the angular speed is
   i) speedometer ii) radiometer iii) tachometer iv) spigmo manometer

2. The relationship between the measurand and the transducer output signal is referred to
   i) frequency response ii) transducer sensitivity iii) photoelectric transducer
   iv) capacitive transducer

3. The atmospheric pressure is equivalent to a rounded figure of
   i) 10 kg/cm^2 ii) 1kg/cm^2 iii) 0.1 kg/cm^2 iv) 100kg/cm^2

4. The rate of cooling of a wire in a hot wire anemometer depends on
   i) dimensions and physical properties of the wire ii) temperature difference between wire and the fluid
   iii) stream velocity under measurement iv) all the above

5. The frequency and the time period are related to each other by the expression
   i) f=T Hz ii) f= -T Hz iii) f=1/T Hz iv) f= -1/T Hz

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES **(K2)**

6. What does it mean by Backlash?
7. Define overshoot
8. What is a transducer sensitivity?
9. Define atmospheric pressure
10. What can be determined using Lissajous figures?

(CONTD…….2)

SECTION – B (5 X 8 = 40 MARKS)

ANSWER ANY FIVE QUESTIONS OUT OF THE EIGHT QUESTIONS. (K3)

11. Explain Accuracy, error and correction. Also explain
    i) Error specification or representation
    ii) Possible and probable errors

12. Give a detailed note on calibration with proper figures and tabulate calibration standards for some physical parameters

13. Elaborate certain terms used with dynamic systems such as
    i) Speed of response and measuring lag
    ii) Fidelity and dynamic error
    iii) Overshoot
    iv) Dead time and Dead zone
    v) Frequency response

14. Explain capacitance transducers with a neat diagram

15. How does the U-tube double column manometer function also derive the measurement of i) pressure greater than atmospheric pressure and ii) pressure less than atmospheric pressure

16. Write a note on hot wire anemometer and its i) constant current and ii) constant temperature mode

17. Explain ultrasonic flow meters

18. Explain piezoelectric accelerometer with a diagram and write down its advantages and limitations

****