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**SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE AND SCIENCE, DEVGAD.
(SINDHUDURG)**

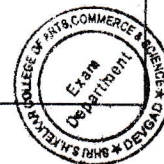
SEMESTER IV, March 2023

COURSE: PHYSICS-III

DURATION: 3 Hours

USPH403

**CLASS: SYBSC
MAX. MARKS:100**



N.B. 1) All questions are compulsory.

2) Figures to the right indicate full marks.

3) Use of log table / non-programmable calculator is allowed.

4) Symbols have their usual meaning unless otherwise stated.

Q.1(A) Select the correct alternative for each of the question given below (12)

i) The positive gravitational anomaly indicates

- a. an excess of mass b. a deficiency of mass c. a reversal of the gravitational field
d. uniform mass

ii) A classic example of hot-spot generated volcanic peak that originated about 70 million years ago is

- a. Hawaiian islands b. Andaman island c. Everest d. Mariana island

iii) The number of address lines required to access 64 Kbytes of memory of the microprocessor is

- a. 16 b. 32 c. 20 d. 8

iv) Flip-flops are used in a microprocessor to indicate

- a. shift register b. latches c. counters d. flags

v) The broadband communication occurs between

- a. Computer and printer b. Mainframe and terminal c. Dial-up modems d. Undersea cable terminals

vi) An analog wave is modulated by a digital signal in

- a. ASK or FSK b. A.M. or F.M. c. PCM or PPM d. All above are true

(B) Answer the following in one sentence. (3)

i. What is the thickness of ocean crust?

ii. Which was the first- generation microprocessor?

iii. A process of transmission of signal through carrier waves is called as?

C) Fill in the blanks (5)

i) The seismic body waves are in nature

ii) Unit of measuring gravity anomaly is

iii) The address bus of 8085 microprocessor is of number of lines.

iv) The Telephone communication is an example of type of communication

v) The upper limit of frequency for AM radio waves is



Q.2 (A) Attempt any one of the following (10)

- i) Explain the structure of Earth and solar system.
- ii) Explain gravitational and magnetic anomalies.

(B) Attempt any ONE of the following (10)

- i) Explain the concept of sea-floor spreading and plate tectonics
- ii) Give an account of seismicity and different types of seismic waves generated during the Earthquake.

Q.3 (A) Attempt any ONE of the following. (10)

- i) Explain in detail the bus organization in microprocessor.
- ii) Give an account of architecture of microprocessor

(B) Attempt any ONE (10)

- i) Give an account of instruction set of 8085 microprocessor.
- ii) Explain different addressing modes in 8085 microprocessor.

Q.4 (A) Attempt any ONE (10)

- i) With a neat block diagram explain the basics of communication system and explain the function of each component in it.
- ii) What is modulation? Derive frequency modulation equation. What is modulation index?

(B) Attempt any ONE (10)

- i) Give the detail account of different types of noise in communication.
- ii) Give an account of baseband and broadband communication. Explain space communication.

Q. 5 Attempt any FOUR (20)

- i) Explain the relation between Geology and Geophysics
- ii) Write note on internal structure of Earth
- iii) Explain different generations of microprocessors
- iv) Write a note on instruction word size of 8085 microprocessor.
- v) Explain Half and full duplex transmission with examples.
- vi) Explain the principles of demodulation.