Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: MAR / APR 2025
Faculty: Science and Technology

Program: B.Sc. (Gen03) **Semester: VI** **SET: A**
Program (Specific): General B.Sc. **Course Type: DSC**
Class: T.Y.B.Sc. (Gen) **Max. Marks: 35**
Name of the Course: Acoustics
Course Code: 24-PHY-366 **Time: 2Hr**
Paper: VI

Instructions to the candidate:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labeled diagram wherever necessary.*
4) *Use of scientific calculator and log table is allowed.*

Q.1. Answer the following. **(5Marks)**

a) What are ultrasound transducers?

b) Define sone.

c) What is a woofer?

d) Define dynamic range.

e) What is a sonic boom?

Q.2. Answer the following. (Any 4/6) **(4 Marks)**

a) Write expression for sensitivity of a carbon microphone.

b) What is Dolby Atmos?

c) State different types of horn loudspeakers.

d) What is a baffle?

e) What is a volume compressor?

f) Which type of microphone is used popularly in telephone systems?

Q.3. Answer the following. (Any 4/6) **(8Marks)**

a) What is A - weighted sound level?

b) What is NDT?

c) Explain noise induced hearing lass.

d) Explain Dolby Noise Reduction.

e) What is MP3 Audio file format?

f) What is a stereophonic sound recording system?

Q.4. Answer the following. (Any 2/4) (8)

a) The open circuit voltage response of the carbon microphone is –50 dB (1v/microbar) when connected to a battery of 12V and its internal impedance is 110 Ω. The diaphragm has an area of 0.002 m^2 and the effective stiffness of 10^6 N/m. Find the resistance constant of this microphone.

b) Write a note on Ultrasonography.

c) With the help of a neat diagram explain construction and working of a direct radiator loudspeaker. Give its equivalent circuit.

d) With the help of a neat diagram explain monophonic sound recording system.

Q.5. Answer the following. (Any 2/4) (10)

a) With help of a neat diagram, write construction and working of a condenser microphone. Draw frequency response curve.

b) Write a note on Graphic Equalizers.

c) Explain what is flare constant? Determine the cut-off frequency of an exponential horn having a flare constant of 4.9 on being used outdoors at a temperature of 40ºC.

d) Write a note on hearing aids.