43 (6) BUSR-VI

2014

BUILDING SERVICES – VI

(Acoustics)

Paper : ARC-6·6

Full Marks : 100

Pass Marks : 40

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any four*** *questions from* ***Q.1*** *to* ***Q.8,*** ***Q.No. 9*** *compulsory.*

1. *(a)* What are acoustical defects in an enclosure ? Identify their cause and suggest method to overcome them. 10

   (b) Discuss the limitations of human speech and sound perception by human. 10

Or

2. *(a)* List out *any three* acoustical materials available in market. Also mention advantages, disadvantages and installation required, if any. 10

(b) Explain with neat sketches of ceiling reflection in an auditorium. 10

3. *(a)* Explain "Inverse square law" of acoustics with neat sketches. 10

(b) Explain different types of absorption. 10

Or

4. *(a)* Why is acoustics, as a subject, studied in architecture ? 10

(b) Write notes on reflection of sound on flat, concave and convex surfaces with sketches. Also write about their applications in acoustical design. 10

5. Explain constructional and planning measures for good acoustical design of auditorium. Elaborate with necessary sketches. 10+10

Or

6. What is an acoustical material ? What are its types ? Elaborate *any three* types. 10+10

7. *(a)* Explain porus absorption, panel absorption and absorption Helmoltz Panels. Show in graph how their co-efficient of absorption changes with frequencies. 10

(b) What is acoustilite and how it is prepared ? Write *any three* advantages and disadvantages of acoustilite as an acoustical material. 10

Or

8. *(a)* Calculate the changes in sound level when the intensity in the sound is doubled. 6

(b) 90% of the sound of level 20*dB* is absorbed by the wall and the rest is reflected back. Find the level of reflected sound. 6

(c) What do you understand by Reverberation ? Calculate RT of a room of dimension $10\times5\times3m$ having average co-efficient 0·1. 8

9. Write short note on : ***(any ten)*** 10×2=20

(a) Diffraction of sound

(b) Masking of sound

(c) N.R.C.

(d) Live & Dead room

(e) Sound intensity

(f) Pitch and Tone

(g) Decibel scale

(h) Reverberation time

(i) Sabines law

(j) Flooting floors

(k) Noise control.
