Reg. No.																

Question Paper Code	12994

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024

Second Semester

Civil Engineering

20BSPH204 - PHYSICS FOR CIVIL ENGINEERING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Sound which produces a pleasant effect to our ears is called ------- (a) noise (b) music (c) traffic (d) train horn	1	K1	CO1
2.	Which law states that the loudness produced is directly proportional to logarithm of intensity. (a) Ohm's (b) Stefan's (c) Weber-Fechner (d) Ampere	1	K1	CO1
3.	The time duration for which a sound persists even after the source of sound has stopped to emit the sound is called ---------- (a) longer (b) shorter (c) reverberation time (d) decibel	1	K1	CO1
4.	Metals are malleable, ---------- and exhibit crystalline properties. (a) opaque (b) transparent (c) ductile (d) liquid	1	K1	CO2
5.	The principle behind metallic glass preparation is ---------- (a) rapid cooling (b) rapid heating (c) rapid quenching (d) rapid alloying	1	K1	CO2
6.	SMA is known as (a) solid metal alloys (b) soft material alloys (c) shape memory alloys (d) semi-metal alloys	1	K1	CO2
7.	What is the primary unit of measurement in radiometry? (a) Lumen (b) Watt (c) Lux (d) Candela	1	K1	CO3
8.	According to the cosine law, the illuminance on a surface is proportional to: (a) The square of the distance (b) The cosine of the angle of incidence (c) The total luminous flux (d) The area of the surface	1	K1	CO3
9.	Which law is used to calculate the intensity of light at a distance? (a) Cosine Law (b) Inverse Square Law (c) Snell's Law (d) Stefan-Boltzmann Law	1	K1	CO3
10.	What is the primary function of a central heating system? (a) To cool the building (b) To distribute heat throughout the building (c) To ventilate the building (d) To filter indoor air	1	K1	CO4
11.	Which of the following is a common thermal measurement tool? (a) Thermometer (b) Hygrometer (c) Anemometer (d) All of the above	1	K1	CO4
12.	Which of the following factors can lead to increased heat loss in a building? (a) Proper insulation (b) Air leaks (c) Double-glazed windows (d) Thermal mass	1	K1	CO4
13.	What is the main purpose of an air filter in an air conditioning system? (a) To cool the air (b) To remove dust and allergens (c) To regulate humidity (d) To increase airflow	1	K1	CO5
14.	What is the role of water piping in fan coil systems? (a) To provide electrical connections (b) To transport chilled or heated water (c) To filter air (d) To control humidity	1	K1	CO5
15.	What is a key design consideration for natural ventilation? (a) Building orientation (b) Colour of the building (c) Type of furniture (d) Landscaping	1	K1	CO5
16.	In a chilled water plant, what is the primary function of the chiller? (a) To circulate air (b) To cool water (c) To heat water (d) To filter air	1	K1	CO5

17.	The upper part of the mantle is also known as ---------- (a) troposphere (b) stratosphere (c) asthenosphere (d) ionosphere	*1*	*K1*	*CO6*
18.	The place where the actual fracture occurs is called ---------- (a) slipping (b) fault (c) earthquake (d) eruptions	*1*	*K1*	*CO6*
19.	The magnitude of the earthquake is measured in ----------scale. (a) Kelvin (b) Celsius (c) Ritcher (d) Rankine	*1*	*K1*	*CO6*
20.	Primary seismic waves are known as ----------waves. (a) shear (b) transverse (c) secondary (d) longitudinal	*1*	*K1*	*CO6*

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

21.	Enumerate the ways in which sound is classified.	*2*	*K2*	*CO1*
22.	Distinguish between loudness and intensity of sound.	2	*K2*	*CO1*
23.	Mention the steps for the processing of ceramic materials.	2	*K1*	*CO2*
24.	What are the advantages of shape memory alloys?	2	*K1*	*CO2*
25.	Define photopic, mesopic and scotopic visions.	2	*K1*	*CO3*
26.	What is LED?	2	*K1*	*CO3*
27.	List the need for shading devices.	2	*K1*	*CO4*
28.	Define fenestration.	2	*K1*	*CO4*
29.	What are the common causes of AC fire?	2	*K1*	*CO5*
30.	Define focus and epicentre of earthquake.	2	*K1*	*CO6*

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

31.	a)	Write an essay on the design procedure of an auditorium to have good acoustics.	*10*	*K2*	*CO1*
		OR			
	b)	Derive Sabine's Formula for the reverberation time of a Hall.	*10*	*K2*	*CO1*
32.	a)	Explain the preparation, types, properties and applications of metallic glasses.	*10*	*K2*	*CO2*
		OR			
	b)	Discuss about Fiber Reinforced Plastics (FRP) and Fiber reinforced metal (FRM).	*10*	*K2*	*CO2*
33.	a)	Explain the cosines law with derivation in detail.	*10*	*K2*	*CO3*
		OR			
	b)	Explain visual field glare and their methods to reduce glare.	*10*	*K2*	*CO3*
34.	a)	Describe the internal and external shading devices.	*10*	*K2*	*CO4*
		OR			
	b)	Explain about fenestration and their components in detail.	*10*	*K2*	*CO4*
35.	a)	Discuss the ventilation and its design for natural ventilation.	*10*	*K2*	*CO5*
		OR			
	b)	Describe the construction and working of window air conditioner.	*10*	*K2*	*CO5*
36.	a)	Discuss the earthquake ground motion with types, intensity and magnitude.	*10*	*K2*	*CO6*
		OR			
	b)	Explain the volcanoes and their types.	*10*	*K2*	*CO6*