

CON 1412

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

SAFETY ENGINEERING-I (THEORY-II)*Instructions:—*(1) All questions are *compulsory*.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate *full* marks.**Marks**

1. Select correct alternatives :—

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(a) Ratio of direct cost to indirect cost of accident is

(i) 1:1

(ii) 1:2

(iii) 1:3

(iv) 1:4.

(b) Pneumatic power tools hazards includes

(i) Release of low air pressure (ii) Release of high air pressure

(iii) Torsion effect

(iv) Shock effect.

(c) Safety training for developing skill in the use of

(i) Safe work techniques and (ii) Reducing accidents practices.

(iii) Statutory requirements

(iv) Legal requirements.

(d) Indian electricity rule 1956, rule 34 is about

(i) Accessibility of bare conductors (ii) Extra high voltage supply

(iii) Low voltage supply

(iv) Isolators.

(e) Scientific safety management includes directing, controlling and reviewing is a function of

(i) Getting ready to start

(ii) Actual managing

(iii) Management process

(iv) All of above.

(f) Permanently fastened to an up right surface is called

(i) Fixed ladder

(ii) Extension ladder

(iii) Portable ladder

(iv) Step ladder.

(g) Comprehensive safety audit is done as per

(i) BIS 14489

(ii) BIS 29990

(iii) ISO 2001

(iv) ISO 2004.

(h) The human ear can hear frequencies as high as

(i) 5 khz

(ii) 10 khz

(iii) 15 khz

(iv) 20 khz.

[Turn over

- (i) Safety psychology to industrial field is called
 (i) Human psychology (ii) Worker psychology
 (iii) Industrial psychology (iv) Social psychology.
- (j) Factory Act 1948, Section 25, is about
 (i) Work on machinery under motion.
 (ii) Striking gear devices for cutting of power
 (iii) Self-acting machines
 (iv) All of above.
2. Write short notes on (any *four*) :— 16
 (a) Principles of machine guarding.
 (b) Role of safety committee.
 (c) Safety in "polishing" and "buffing" operation.
 (d) Cost of accident.
 (e) Preventive maintenance.
3. Write in detail (any *two*) :— 16
 (a) Draw a neat diagram of Hein rich's Triangle and explain its significance in accident prevention.
 (b) Describe the types of hazards in an assembly shop.
 (c) Explain the various factors to be considered while planning and construction factory building and plant layout for safety.
4. Answer the following questions (any *two*) :— 16
 (a) What are safety requirements of mobile scaffold? What are the precaution to be taken while using mobile scaffolds?
 (b) Misconception of safety.
 (c) Explain kinetic of manual handling and ergonomics of manual handling.
5. Answer the following questions (any *two*) :— 16
 (a) Importance of standards and codes of practice for plant and equipments.
 (b) "Contractor training is essential to improve safety performance" comments.
 (c) Explain how testing of lifts and hoist are carried out.
6. Answer the following questions (any *two*) :— 16
 (a) Explain zero mechanical state (zms).
 (b) Compare interlock and fixed guards for two stroke power press.
 (c) Name the causes of bursting of a grinding wheel.
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