

Tower Crane

A04

Technical Test – Theory

Roles and responsibilities	1. What is the definition of, or how can a hazard be described?
	A
	2. What is the purpose of a risk assessment?
	A
	3. List SIX typical subject areas that should be covered in a site induction.
	A
	4. What THREE main duties of The Health and Safety at Work Act must employees follow?
	A
	5. What does The Health and Safety at Work Act require employers to do with regards specifically to plant?
	A
	6. a) What is the purpose of a Method Statement and b) what is required of the operator?
	A
	7. Name FOUR different types or levels of sanctions that can be applied (by employers and judicial bodies) to plant operators who do not comply with, or follow legislation and regulations?
	A
	8. Crane operators are generally regarded as 'safety-critical' workers. What does this mean?
	A

continued...

Roles and responsibilities continued	9. Name THREE ways in which an operator can minimise their impact upon the environment whilst using the crane.
	A
	10. State the functions or job role of the following personnel: a) Appointed Person, b) Crane Supervisor, c) Slinger, d) Signaller
	A
	11. In what situation does a hard hat NOT need to be worn when operating a tower crane?
	A
	12. The operator has to use a new model of tower crane that they are unfamiliar with. What do Regulations (i.e. LOLER 98) and other guidance require the operator to have?
	A
	13. What are the possible outcomes if being prosecuted for not complying with legislation and regulations?
	A
	14. What do The Work at Height Regulations require of tower crane operations.
	A
	15. How can a qualification or card benefit a crane operator?
	A
	16. Name THREE ways that a crane operator can contribute in ensuring repeat business with the client or main contractor.
	A

continued...

Preparing for work	17. Where should the Operator’s Manual be kept and why?
	A
	18. What is the difference between a contract lift and a ‘standard’ crane hire?
	A
	19. What is meant by a floor climbing tower crane?
	A
	20. a) What is meant by the lifting capacity of the crane and b) who determines it?
	A
	21. What are the THREE actions or stages that a crane operator undertakes during pre-use inspections?
	A
	22. a) Where must the load radius diagram be located and b) what information must it contain?
	A
	23. Using the Operator’s Manual or other, state the procedure for changing the number of falls on the hook block.
	A
24. Using the Operator’s Manual or other, state the maximum wind speed the crane may be operated in.	
A	
25. What prevents the hook block from contacting the jib pulley?	
A	
26. A tower crane has been delivered to site, assembled and configured for lifting. What must be carried out before lifting starts and by whom?	
A	

continued...

Preparing for work continued	27. Why are some tower cranes rail mounted?
	A
	28. Which parts of the crane is the radius (for lifting) measured from?
	A
	29. a) In what environments are luffing units commonly used and b) why?
	A
	30. Apart from the operator, who else may need to use the machine's Operator's Manual?
	A
	31. What is the purpose of counterweight(s) on the crane?
	A
	32. a) How does the number of lines or falls of rope affect the lifting capacity for the crane and b) how is hoist speed affected when the number of lines (or falls of rope) is reduced?
	A
	33. What is meant by a 'cast in' base?
	A
34. Name FIVE requirements that must be followed if accessing the end of the jib for maintenance purposes.	
A	
35. If fitted, what is the purpose of the flags situated on the jib?	
A	
Setting up for work	36. Why should tools and spare components not be left lying on the decks or landings?
	A
	37. If assisting in erecting a tower crane, why is it important that the manufacturer's procedures are followed precisely?
A	

continued...

Setting up for work continued	38. If a load of 20 tonnes is lifted on 4 falls or lines of rope, what is the tension in each fall or line?
	A
	39. Wind speeds can be variable throughout the working day. What action must be taken to ensure safe working conditions are maintained?
	A
	40. What is the main purpose of the Rated Capacity Indicator (RCI)?
	A
	41. If setting up to lift loads near a pedestrianised area, what main factor needs to be taken into account?
	A
Working tasks	42. a) What is the recommended minimum distance to be kept away from overhead power lines mounted on metal pylons and b) explain why a distance should be kept.
	A
	43. On a busy construction site, how would the slinger/signaller be identified to the crane operator?
	A
	44. The number of falls has been changed on the hook block. How has this action affected the RCI?
	A
	45. The safe working load or working load limit (SWL/WLL) of a multi-leg chain sling only applies in what TWO conditions or configuration?
	A
46. Apart from lifting using the hook, what other type of work can tower cranes undertake?	
A	
47. What is jib deflection and when does it occur?	
A	
48. If radios are to be used during the lifting operations, what FIVE actions and checks must be made by the crane operator before use?	
A	

continued...

Working tasks continued	49. Name TWO ways that wet weather can affect lifting operations.
	A
	50. What makes up the total (or gross) weight of a load that is to be lifted?
	A
	51. Using the lifting capacity diagrams (Annex A and B): Annex A using a 55 metre jib set-up – a) what is the lifting capacity on tonnes at 34 metres radius and b) what radius can a load weighing 5.80 tonnes be placed at? Annex B using a 45 metre jib set-up – c) what is the lifting capacity in tonnes at 27 metres radius using double falls and d) using a single fall, how far can a load weighing 9.6 tonnes be placed?
	A
	52. If a heavy load is being slewed at high speed over at least 180 degrees, what TWO factors must the operator and signaller take into account?
	A
	53. What effect can a swinging load have on a crane?
	A
	54. During the lifting operation, part of the task cannot be carried out as detailed in the lift plan. a) What initially must happen to the lifting operation and b) who authorises any changes?
	A
	55. What problems can be created when operating the crane in high-speed drive?
	A
	56. Name THREE ways in which wind speed can affect the lifting operation.
	A
	57. If a load is slewed rather quickly, what TWO initial effects does it have on the load whilst slewing?
	A
58. When slewing with a load, where should the operator be looking?	
A	
59. If the words STOP NOW are given to the crane operator by radio during the lift, what action must the operator take?	
A	

continued...

Working tasks continue	60. Only two legs of an 8 tonne 4 legged chain sling are being used. What is the maximum load that can be lifted?
	A
	61. If the hook block inadvertently (accidentally) lands, what course of action should be taken?
	A
	62. Two cranes are working in the same vicinity that encroach the operating radius of each. What actions would the lift plan or method statement normally specify?
A	
Shutdown	63. What is the meaning of this hand signal (being demonstrated by the Tester)?
	A
	64. At the end of the shift: a) in what position should luffing jibs be left in and b) why?
	A
	65. At the end of the shift: a) how should cab cleanliness be maintained and b) explain why?
A	
Shutdown	66. a) At the end of the shift: what FOUR security measures should be applied and b) why?
	A