

Subject A

Teacher(s):	RAGOT – HASSAYOUNE
Head of department:	RAGOT
Module:	EC07-Industrialisation
Promotion:	2025
Date of the exam:	08/01/2024
Time of the exam:	13h00
Duration of the exam:	1h

- Exam organisation for people with disabilities:

**1 hour + extra time
(one third)** ~~1h30; adapted
subject~~ ~~not concerned~~

- Authorised material:

Computer	Yes	No
Calculator Casio Fx92 Collège	Yes	No
Other authorised equipment	Yes	No

- Required material:

Rough paper	Yes	No
Double sheets	Yes	No

- Collect all the subjects Yes ~~No~~

For multiple-choice questions, answers may be single or multiple.

A correct answer is worth 100%.

a false or incomplete answer is worth 0.

1. Traceability is costing huge amount of money and decision taking of implementation is complex (1 Pt)

A	B	C	D
True	False		

2. A Milestone is a short moment during which the core team is investigating and validating (or not) the expected deliverables (1 Pt)

A	B	C	D
True	False		

3. Which of these tasks are commonly managed by Industrialization: (1 Pt)

A	B	C	D
Project Management	Continuous Improvement	Maintenance	Tests

4. Industrialization is in relationship with PMO to: (1 Pt)

A	B	C	D
apply tools from PMI & Prince 2	Report the progress of industrialization activities	lead some strategic company project (Project Management Office)	understand marketing needs (Project Marketing of Object)

5. A waterjet cutting is able to cut: (1 Pt)

A	B	C	D
Carton	Stone	Leather	Metal

6. Purpose of conformal coating is to: (1 Pt)

A	B	C	D
avoid oxidation	avoid hacking	avoid moisture	avoid short circuits

7. Potting is: (1 Pt)

A	B	C	D
for flowers, but nothing to do with that training	A resin filling the PCBA and its container	A PCBA design by Harry	impossible to repair

8. Who is doing what? (1 Pt)

A	B	C	D
BOM (flat) is done by Industrialization, transformation process and structured BOM are done by R&D	BOM (flat) is done by R&D, transformation process and structured BOM are done by Logistic	BOM (flat) is done by Sales, transformation process and structured BOM are done by Industrialization	BOM (flat) is done by R&D, transformation process and structured BOM are done by Industrialization

9. What is the ultimate goal of industrialization? (1 Pt)

A	B	C	D
To satisfy Customers' demand	To increase Volumes	To increase Quality	To reduce Costs

10. An industrial milling centre is costing (Average): (1 Pt)

A	B	C	D
100k€	1M€	1k€	10k€

11. What are the key competencies required for a “good project leader”? (1 Pt)

A	B	C	D
Having good understanding of skills related to the project	Very good communicator	Able to synthesize, prioritize, motivate the team	Charism (indirect management), able to convince

12. Industry 4.0 was created: (1 Pt)

A	B	C	D
in Germany, in 2021 to compete with China	in Germany, in 2011 to compete with India	in China, in 2011 to compete with Germany	in Germany, in 2011 to compete with China

13. Silk printing is an industrial commonly used process: (1 Pt)

A	B	C	D
True	False		

14. A “Stakeholder” is: (1 Pt)

A	B	C	D
Somebody that will finance the project	Nobody	Somebody that is, concerned by the project	Somebody that is not concerned by the project

15. For organization of Industrialization: There is no good or bad solution, just the one corresponding to: (1 Pt)

A	B	C	D
The faster delivery	the best solution	The market demand	The need from the CEO

16. An empiric value for “Cost of Inventory ownership” should be: (1 Pt)

A	B	C	D
between 10 and 25% per annum	between 50 and 75% per annum	between 1 and 2.5% per annum	between 100 and 250% per annum

17. PCBA Stress can occur: (1 Pt)

A	B	C	D
During component placement	During storage	During Assembly	During dilatation

18. (Industrial) Project risk management is: (1 Pt)

A	B	C	D
Prepare for the war	Considering some “probable” events that might occur and jeopardize the delivery of the project	Pray and wait	Preparing some corrective actions in case something is happening

19. Conformal coating in: (1 Pt)

A	B	C	D
A varnish applied on most of the PCBA	A trench coat placed on the PCBA	A overlay	A varnish applied on ALL the PCBA

20. A project leader is necessary a Product Owner or Scrum Master (1 Pt)

A	B	C	D
True	False		

21. A SMT reflow process can be single or double side: (1 Pt)

A	B	C	D
True	False		

22. Electronic tests of PCBA can be done: (1 Pt)

A	B	C	D
visually	functionally	with flying probes	with burning tests

23. For finished products stock only: How do I calculate the inventory stock value? (1 Pt)

A	B	C	D
$Sv = \text{Stock value} = \text{Yearly turnover} \times (\text{time between ready for sales + payment lead time}) / 31$	$Sv = \text{Stock value} = \text{Yearly turnover} \times (\text{time between ready for sales + payment lead time}) / 100$	$Sv = \text{Stock value} = \text{Yearly turnover} \times (\text{time between ready for sales + payment lead time}) / 180$	$Sv = \text{Stock value} = \text{Yearly turnover} \times (\text{time between ready for sales + payment lead time}) / 365$

24. Which of the following terms are used to name the activities performed by Industrialization: (1 Pt)

A	B	C	D
R&D	Methods	Industrial engineering	Manufacturing Engineering

25. Industrialization is in relationship with Top Management to: (1 Pt)

A	B	C	D
decide about manufacturing locations	identify competitors	make Business Hypothesis, sensitivity to external fluctuations	increase salaries

26. The consequence of PCBA pollution is: (1 Pt)

A	B	C	D
reduced performances	insects into products	smelling of product	Bad contacts

27. Which of the following processes are “surface treatments” for Plastics? (1 Pt)

A	B	C	D
Painting	Chrome plating	Corona	Plasma

28. Which of the following processes are “Assembly by welding”? (1 Pt)

A	B	C	D
MIG	Resistive	MUG	TAG

29. ESD is the plague (la peste) or the scourge (le fléau) of electric industry: what is the ONLY solution? (1 Pt)

A	B	C	D
Reparation	Elimination	Connexion	Prevention

30. What is the INDIRECT labour definition? (1 Pt)

A	B	C	D
INDIRECT means: we can't directly see their labour activities on the product	INDIRECT means: 1h labour for 1 product. Less or more than 10h labour for 10 products	INDIRECT means: not directly impacting the quality of the product	INDIRECT means: creating non added value on the product

31. Deep stamping is used for: (1 Pt)

A	B	C	D
Drilling metal sheets	Pan (fr: casserolles)	oil and gaz drilling	Automotive

32. Smartphones currently manufactured are: (1 Pt)

A	B		
Almost all identical because they are mass produced in a factory in China	All different because of the variety of apps installed by the user		

33. A injection specific tool can cost up to: (1 Pt)

A	B	C	D
100k€	300k€	30k€	10k€

34. Industrialization is in relationship with Quality to: (1 Pt)

A	B	C	D
Validate equipment	Generate the best quality	prepare FMEA	reduce costs

35. "SMT" means: (1 Pt)

A	B	C	D
Surface Mount Device	Solid Mount Technology	Surface Mount Technology	Simultaneous Multi-Threading: but nothing to do with that test

36. In the definition available on Wikipedia describing Industrialization, the following tasks are listed: (1 Pt)

A	B	C	D
optimization of complex systems	improving systems of knowledge	may also overlap with operations research	central to manufacturing operations

37. Industrialization is in relationship with Marketing to: (1 Pt)

A	B	C	D
prepare the communication Marketing plan	prepare phase in and phase out of products	define the user stories	make the Marketing plan

38. Plastic injection machine is much cheaper than Metal stamping machine (1 Pt)

A	B		
False	True		

39. A vibrating bowl feeder is used to: (1 Pt)

A	B	C	D
Feed the bowls to the customers	Provide parts with vibrations	Assemble parts	Mix Materials

40. If I read 1002 on an SMD component it means: (1 Pt)

A	B	C	
the size of the resistor is 1mmx0,2mm	The resistor value is 10kohms	the size of the resistor is 10mmx2mm	

41. Burning tests are used to: (1 Pt)

A	B	C	D
test the PCBA resistance into fire	Accelerate “infant” mortality	simulate the strong conditions of life usage	Test the resistance of firefighters

42. Fr: trempe is in English: (1 Pt)

A	B	C	D
Ageing	Quenching	Quetsching	Staining

43. The only solution for PCBA stress is: (1 Pt)

A	B	C	D
Flexible PCBA	No Stress	Music in production	Yoga PCBA

44. Mechanical assemblies can be: (1 Pt)

A	B	C	D
soldering	screwing	glueing	welding

45. Industrialization is in relationship with Supply Chain to: (1 Pt)

A	B	C	D
define the length and size of the chain	prepare “make or buy”	define the replenishment parameters in the ERP	define the flows of every single component

46. A “Shareholder” is: (1 Pt)

A	B	C	D
Somebody that is concerned by the project	Nobody	Somebody that is financing the project	Somebody that is not concerned by the project

47. “Direct sourcing” in: (1 Pt)

A	B	C	
everything that is directly sourced by the company	everything that is part of the product (Bill Of Material) like raw material, parts, stickers	everything that is bought ‘at the source’	

48. MTO means: (1 Pt)

A	B	C	D
Machine Time Ordering	Mean Time Ordering	Maintenance Time Offered	Make To Order

49. This are robots: (1 Pt)

A	B	C	D
Cobots	Polar	Scara	Terminator

50. Industrialization is in relationship with IT to: (1 Pt)

A	B	C	D
find the best IT tools to support industrialization activities	Design 3D parts	Buy Divalto	program PLC

51. PCBA means: (1 Pt)

A	B	C	D
Placed Circuit Board Assembled	Plated Circuit Board Assembled	Printed Circuit Board Assembled	Printed Components Board Assembled

52. A THT process means: (1 Pt)

A	B	C	D
True Hall Technology	Two Holes Technology	Through Hole Technology	

53. Wage and direct salary costs includes: (1 Pt)

A	B	C	D
Net wage given to employee	absenteeism cost	Bonus and accessories free of tax	Social burden tax paid by employer

54. Traceability system is necessarily using Digital & IoT technologies (1 Pt)

A	B	C	D
False	True		

55. "Indirect sourcing" is (1 Pt)

A	B	C	D
everything that is not bought "at the source"	everything that is not "Direct like Tools, maintenance costs, external consultant, machinery	everything that is not directly sourced by the company	

56. EDM (Electrical Discharge Machining) is named in French (1 Pt)

A	B	C	D
Machine de test de décharge	Machine électronique	Machine électrique de machinage	Machine d'électro-érosion

57. Which of the following processes are "surface treatments" for Metals? (1 Pt)

A	B	C	D
Phosphating	Painting	Silver plating	Tempering

58. NVP result at 4 years in a business plan is: (1 Pt)

A	B	C	D
The tax the company will pay	The Non-Visible Payments	The money earned or lost after 4 years of production & deliveries of the project	The money invested into the project

59. Tests in production are made: (1 Pt)

A	B	C	D
By attribute (go/nogo)	By QCM	By measurement	

60. What are the constraints that needs to be considered for electronic assembly? (1 Pt)

A	B	C	D
Dust	Temperature	Humidity	ESD

61. Industrialization is in relationship with Toolshop to: (1 Pt)

A	B	C	D
define the costs of sale	Define the number of cavities per tools	Prepare Single Minutes Exchange Die	define the list of products to be sold by the shops

62. A stamping tool is depreciated (in French) during: (1 Pt)

A	B	C	D
8 years	1 year	30 years	4 years

63. Industrialization is in relationship with R&D to: (1 Pt)

A	B	C	D
preform technical feasibility evaluations	perform economic feasibility evaluations	challenge technical product solutions with technical solutions for process	realize 2D drawings

64. Laser welding is better than ultrasonic welding (1 Pt)

A	B	C	D
False	this question has no sense as long as I don't know the field of application	False	

65. In a Business Plan, if the NPV after 4 years is higher than the NPV after 8 years: (1 Pt)

A	B	C	D
The company is loosing money	I'll loose my customers	The profitability of the company is decreasing	The shareholder will ask money back

66. Payback result in a business plan is: (1 Pt)

A	B	C	D
The time it takes to get the money from the Stakeholders	The time it takes to get the money from the Shareholders	The boomerang effect of the finance	The time it takes for the project to become profitable

67. To improve the figures into my business plan, I can: (1 Pt)

A	B	C	D
Fake the figures in Excel	Win new markets	Sell my product higher price	Make Lean projects

68. What is DIRECT labour definition? (1 Pt)

A	B	C	D
Direct means: 1h labour for 1 product. 10h labour for 10 products	Direct means: creating only added value on the product	Direct are paid directly, indirect are paid through interim agencies	Direct means: directly impacting the quality of the product

69. Which standard applies to Environmental Product Declaration? (1 Pt)

A	B	C	D
ISO14027	ISO14021	ISO14025	

70. What is the right definition of a joint declaration? (1 Pt)

A	B
A joint declaration is performed for several products across multiple manufacturers.	A joint declaration is performed for several commercial references, from a single manufacturer, belonging to a homogeneous environmental family.

71. ISO 14020 applies to PEP ecopassport (1 Pt)

A	B	C	D
True	False		

72. PEP ecopassport allows? (1 Pt)

A	B	C	D
Products family declarations	Single product declarations	Joint declarations	

73. Footprint Declaration is another name given to Environmental Product Declaration (1 Pt)

A	B	C	D
True	False		

74. The Module D in PEP ecopassport corresponds to a net calculation of the environmental impact prevented at end of life (1 Pt)

A	B	C	D
True	False		

75. What is the right definition of the Functional unit? (1 Pt)

A	B	C	D
measure of the outputs from processes in a given product system required to fulfil the function expressed by the functional unit	quantity of product used as a reference for the environmental declaration (could be expressed in weight, length, surface area, volume, etc...)	quantified performance of a product system for use as a reference unit in a life cycle assessment	

76. PEP ecopassport doesn't consider benefits and loads beyond the life cycle (1 Pt)

A	B	C	D
True	False		

77. A self-declaration must be verified by third party (1 Pt)

A	B	C	D
True	False		

78. Which standard applies to Eco-labels? (1 Pt)

A	B	C	D
ISO14021	ISO14025	ISO14024	

79. Which claims are environmental self-declarations? (1 Pt)

A	B	C	D
PEFC certified wood	Compostable bag	Contain 20% recycled material	

80. Choose the right statement (1 Pt)

A	B	C	
In an Environmental Product Declaration programme, no rules are set	In an Environmental Product Declaration programme, same rules apply to all products	In an Environmental Product Declaration programme, product category rules apply to each specific product category	